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"Scire est nescire, nisi id me
Scire alius sciret."

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LOCAL ANALGESIA IN SURGICAL OPERATIONS.

BY

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THE skilful employment of local analgesia in surgery can only be relied upon where due consideration is paid to a variety of factors, so numerous that their mastery calls for no small degree of patience, and so essential that the neglect of any one of them will almost certainly lead to some degree of failure.

The factors which it is necessary to consider may be reviewed under the following headings :—

1. The type of patient.
2. The nature of operation.
3. The selection of drug.
4. The method by which the drug is administered
5. The technique employed.

1. *The type of patient.*

Local analgesia may be used with confidence in adults of good physique, especially if possessed of a calm disposition, and if showing a capacity for tolerating a certain degree of discomfort without becoming apprehensive or frightened, but in the case of nervous and irritable patients it should generally be avoided.

In some instances, however, where an insuperable dread of a general anæsthetic has become established local analgesia offers a most efficient substitute.

Children under twelve years of age are not good subjects, owing to their susceptibility to toxic symptoms and to their want of control. If however, great care is exercised in the dose to which they are submitted, children as young as five or six may be successfully operated on under this method. Struthers and others have reported many cases.

Old patients, and those who have become weakened by chronic disease or septic processes, are prone to develop symptoms of poisoning if the quantity of drug used is not smaller than the average dose, and they are apt to suffer from shock if the quantity has not proved sufficiently powerful to render the operation painless. This class of patients, therefore, requires careful handling.

Some individuals undoubtedly show an idiosyncrasy for the poisonous action of cocaine, eucaine, and novocain, but with modern methods and suitable precautions even this danger has become almost negligible.

2. *The nature of operation.*

So much depends upon the circumstances surrounding each case, that no general law can be laid down as to which particular operations ought to be performed under a local and which under a general anæsthetic.

The work of such men as Schleich, Cushing, Braun, Reclus and others has demonstrated that practically any

operation may be performed under local analgesia, a fact of special interest to the surgeon who meets with the increasingly rare contingency of having to work without skilled assistance or the ordinary facilities to which he is accustomed.

When a table is made of cases where a general anæsthetic would jeopardise life, and where analgesia is therefore the method of election, the list is a limited one, and includes such operations as tracheotomy for acute or increasing respiratory distress, especially if accompanied by cardiac failure or grave toxæmia, as in diphtheria; enterostomy or herniotomy for intestinal obstruction with fæcal vomiting; cystotomy for prostatectomy when complicated by the presence of bronchitis; exploratory incisions in cases of advanced malignant disease of the abdomen; gastrostomy in senile subjects in advanced stages of inanition; superficial operations on subjects who suggest a tendency to cerebral hemorrhage, or who are suffering from such diseases as diabetes or exophthalmic goître.

In all other instances the preference for local over general anæsthesia will be a question of convenience rather than one of safety, and will apply to cases too trivial to justify the inconvenience of a general anæsthetic; instances where the surgeon is single-handed or where the wish or fears of the patient demand local analgesia.

3. *The selection of drug.*

Cocaine when first introduced was used in unnecessarily concentrated solutions such as 3, or 5, or even 10 per cent., instead of ½ or 1 per cent., and frequent instances of poisoning resulted. It was pointed out by Schleich that efficient analgesia could be obtained with such weak solutions as ½ or 1 per cent., also that when used in these dilute strengths a larger total dose of the drug could be tolerated with impunity. The experimental and clinical results of Braun

showed that whereas ¾ grain of cocaine represented the safety limit when used in a 1 per cent. solution, 1½ grains could be given in safety in $\frac{1}{10}$ per cent. solution. But β-eucaine made its appearance with claims to a lower degree of toxicity, and to a large extent displaced cocaine in this country. The safety limit of this drug when combined with adrenalin was found to be 2 grains when used in a ½ per cent. solution, and 6 grains when used in a $\frac{1}{10}$ per cent. solution. β-eucaine thus gained favour as being comparatively safe, but it brought discredit to the method owing to its lack of diffusibility and the consequent uncertainty of the resulting analgesia.

Latterly novocain and quinine-urea hydrochloride have taken the field almost exclusively in local infiltration and nerve-blocking methods.

Novocain gives reliable analgesia in ½ to 2 per cent. strengths, but its effect is more transient than that of cocaine—15 minutes compared with 30 minutes (approximately); its toxicity stands to that of cocaine as 1 is to 7; its maximum dose is 7 grains, and it has the advantage of being sterilizable by boiling.

Urea quinine hydrochloride has a very slight degree of general toxicity, but it produces a peculiar local reaction in the tissues with which it comes into contact. The drug will undoubtedly grow in popularity when the local redness and induration which sometimes follow its use are better understood. These local symptoms may last for some days, but they may, in a large measure, be avoided by the employment of weak solutions, 1 per cent. never being exceeded, and by injecting only into healthy tissues.

The drug is not destroyed by boiling, and the analgesia it produces lasts for a period varying from one hour to twenty-four hours.

4. *The method by which the drug is administered* has a direct bearing upon the selection of drug to be used.

For topical application, as obtains in nasal surgery, cocaine is most suitable owing to its diffusibility. On the other hand, urea-quinine hydrochloride in strengths of 10 or 20 per cent. may be used (Hertzler), but has no blanching action upon the mucous membrane. The urea-quinine salt may be used freely to analgesise the mucous membrane of the bladder.

For œdematisation or infiltration of large areas of connective tissue novocain should be used, and the urea-quinine salt should be avoided, as it produces too much lymph exudation.

Where large areas have to be rendered analgesic it is wise to employ the method of nerve-blocking by injecting novocain or urea quinine, either around the nerve tissues concerned or into the sheath of each nerve after exposure by dissection.

When employing urea quinine for perineural injection, it must be borne in mind that the action of the drug may be delayed for ten minutes or even longer.

5.—*The technique employed.*

The success of the method depends largely upon perfection of technique, which must include—gentleness in manipulation, avoidance of dragging on or of stretching tissues, a full appreciation of the relative sensitiveness of various anatomical structures, and the employment of really sharp cutting instruments and of forceps as light as may be compatible with good workmanship. Moreover, all concerned must be willing, on the slightest evidence of pain, to wait for further injection or for the development of analgesia.

In conclusion.

Local analgesia has been accredited with a capacity for

preventing shock far exceeding that possessed by general anæsthesia.

In this connection it must be remembered that with skilfully-administered general anæsthesia shock is not met with so frequently as some of the advocates of local analgesia would have one to suppose. Moreover, in many of the operations where anoci-association is imperfectly practised brilliant results are claimed. The strength of novocain solution generally used is $\frac{1}{4}$ per cent., and if this strength is used without a general anæsthetic it will be found to give a very deficient analgesia. Moreover, clinical experience and recent experimental work seem to point to the fact that general anæsthesia has the property of preventing the occurrence of shock.[1]

A CASE OF RICHTER'S STRANGULATED HERNIA.

BY

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THE condition known as Richter's hernia is one not very commonly met with, but it is especially serious owing to the delay which often occurs in establishing the diagnosis, the result of the vagueness of the symptoms which is not infrequently present.

In a case of this nature the tumour may be so small as to escape detection, although pain, tenderness, or resistance may be felt. Constipation is not always absolute, some flatus or even fæces passing; this for the obvious reason that the lumen of the gut is not totally mechanically obstructed, nor is there necessarily so great a degree of vascular

[1] Dr. Mann, *Johns Hopkins Hosp. Bull.*, 1914, xxv. 205.

occlusion as to cause a state of dynamic obstruction. Vomiting is not always a prominent feature, and rarely becomes stercoraceous. One or more intermissions in the course of the disease often occur, a point to which attention was called by Sir William Bennett in his *Lectures on Hernia*. There was one distinct intermission in the case described below, in which also the uncertainty of the diagnosis was considerable.

W. H., æt. 29, was seen on the ninth day of his illness. He said he had had a "rupture," operated on by the writer a year previously, and this statement seemed to be confirmed by the presence of a scar in the right inguinal region. Reference to my notes later, however, proved that the operation was for a cyst of the epididymis. Apart from that, so far as he knew, he had never suffered from rupture, nor from any previous attack similar to the one under notice.

This commenced without apparent cause, eight days before the patient was seen, with severe griping pains across the epigastrium and frequent vomiting. The symptoms abated after two days, but then recurred, and had continued off and on ever since. The pain was very little in the lower abdomen, and none was complained of in the groin.

The patient looked extremely ill, with a typical "abdominal" facies, sunken eyes and dilated pupils, and was rolling about in obviously severe pain. The pulse rate was 88 per minute, and the temperature 99.8°.

In the region of the right femoral ring was a very small, firm nodule, quite free from any tenderness. It was so small that it might well have been a gland, and too small to hope to be able to elicit any of the classical signs of strangulated hernia. The abdominal signs were puzzling. There was no distension, nor were any distended coils of intestine visible. In the epigastrium, where the complaint of pain was most severe, the abdomen was quite board-like in its rigidity. It was rigid in the lower part, but distinctly less so than above, and more on the right side than on the left. Examination for shifting dulness was omitted owing to the patient's cries and restlessness. Liver dulness was present.

What, then, was the diagnosis? Had he a small strangulated femoral hernia of eight days' standing? If so, why the severe epigastric pain and rigidity? Had he a perforated gastric or duodenal ulcer, or was his condition due to an inflamed appendix, or possibly acute pancreatitis?

On the whole, in view of the uncertainty, it seemed best

to explore the femoral swelling to exclude strangulated hernia.

An incision was made in this situation, and with some difficulty a minute sac was found. On opening this, the contents proved to be a small viscus, red in colour, not gangrenous, and looking exactly like the tip of an inflamed appendix. It could not be drawn down by gentle traction, so Gimbernat's ligament was nicked: the contents of the sac then promptly disappeared into the abdomen.

It seemed possible that the condition, after all, was one of appendicitis, but in a hernial sac, and in view of the serious abdominal symptoms it seemed advisable to investigate further.

Accordingly, the abdomen was opened through the margin of the right rectus muscle. The peritoneum contained almost clear fluid in considerable quantity, with numerous flakes of lymph. A coil of bowel immediately presented, leaking fæces freely.

What had happened was this. The small object in the sac was a diverticulum, scarcely larger than a good-sized pea, and apparently artificial, on the convexity of a coil of small intestine. Traction on this had so sharply kinked the bowel as to cause ulceration at the kink on the concavity. The ulcer had given way and infected the peritoneal cavity.

The bowel itself was somewhat œdematous, but very little distended, and otherwise in good condition. The hole was too large to permit of closure without danger of obstructing the lumen of the bowel, even granted that stitches could be relied on to hold in the damaged tissues. The bowel containing the fistula was excised with about four inches on either side, and continuity restored by end-to-end anastomosis. The abdomen was closed and drained through a tube in the femoral canal.

The operation was followed by no marked shock, but paralysis of the bowel caused a highly critical condition for the next few days. Enemata were useless, but a course of intramuscular injections of pituitary extract given simultaneously with a turpentine enema produced the desired result. After the bowels were open the patient's condition rapidly improved. Both wounds suppurated mildly from the fæcal contamination, but rapidly healed up, and the man was up in three weeks.

Incidentally it may be remarked that in the writer's opinion this case adds one more to the long list of those whose lives have been saved by the power of pituitary extract to cause contraction of involuntary muscle fibre, and to dispel that fatal complication of intestinal paralysis following operations for obstruction or peritonitis.

Cases of hernia—strangulated or otherwise—in which the whole circumference of the gut is not involved have been described, for a very long time. Attention was apparently first called to them in an essay by Lavater, published in 1672. In 1714 Littré noticed cases in which a diverticulum from the bowel was involved in a hernia. He discussed the possibility of such diverticula being of congenital origin, but dismissed the idea as too improbable. Morgagni, in 1741, published a case in which strangulation of only part of the circumference of the bowel caused death. Richter's work was published in 1799, and in common with other early workers on the subject he recognised two classes of case, according to whether an actual diverticulum was or was not present, but he made no other distinction between them. Except that Meckel demonstrated beyond doubt that the diverticulum which now bears his name was, of congenital origin, the subject received no special attention for nearly a century. Treves, in a paper read before the Medico-Chirurgical Society in 1887, gave Littré's name to the cases with a diverticulum, and Richter's to those in which a part of the bowel-wall was involved. This nomenclature is now generally adopted, and at least keeps alive the names of two early workers on the subject, even if the two names do seem to have been attached to the respective classes of case somewhat empirically.

I have called the above case Richter's hernia, since the diverticulum appeared to be the result of traction, and not of the nature of a Meckel's diverticulum. I did not observe how far from the ileo-cæcal valve the diverticulum was situated.

THE RADIOGRAPHIC CENTROSCOPE AND THE RADIOGRAPHIC EPISCOPE.

BY

WILLIAM COTTON, M.D.

IN the diagnostic use of X-rays three degrees of information are to be obtained.

In the first degree there is determined from attentive observation of the X-ray picture (in comparison with the normal appearance) the presence or absence of what we are led to expect from the history and symptoms of the case. Such are the presence or absence of concretions or calculi or foreign bodies, the multiplication or transposition of the parts depicted, marked alterations of outline, alterations of the texture of the parts from gouty or rheumatoid or tubercular or other deposit and infiltration, the presence of fracture in the form of fissure or of fragments, and the like. This is the method of simple inspection.

In the second degree there is determined, from an exact knowledge of the position of the radiographic centre of emission to the object and to the picture plane at the time of exposure, the direction in which the parts depicted lie within the body. This is the method of perspective.

In the third degree there is determined from two or more X-ray pictures (taken according to certain rules from different points) the relative or actual position within the objects of the parts depicted. This may be called the method of stereometry, and includes all the methods of X-ray stereoscopy and localisation.

Of these three methods our greatest clinical use has been made of the first and third. The second—the method of

perspective—has been almost entirely neglected and misunderstood, from an initial and almost universally prevailing error of viewing the X-ray picture from the wrong side; this mistake, being originally made in Germany, needs a lot of shifting.

Except in such a case as the case of a projectile which has split asunder into fragments within the body (*e.g.* from impact on a bone), the clinical evidence from simple inspection is merely confirmatory or negative. But when the diagnosis of direction is made, on correct principles of perspective, we get fresh radiographic evidence of positive value, not obtainable from any other method of physical examination, which evidence may obviate any necessity of further appeal to a second exposure in accordance with the methods of X-ray stereoscopy and localisation.

Perspective may be defined here as that branch of geometry which treats of the appearance of objects to an observer's eye, as distinguished from their actual shape. It actually deals with the principles of picture making and picture viewing. According to the rules of ordinary perspective, a picture is any representation on a surface usually flat, of any near object in space, by straight lines which radiate, or may be supposed to radiate, from a fixed point called the centre of projection. This description comprehends visible shadows thrown by a small lighted candle on a screen within an ordinary room, ordinary photographs, and pinhole photographs of near objects, ordinary drawings, and X-ray pictures; the centre of projection being respectively the lighted candle, the optical centre of the photographic lens, the pinhole of the pinhole camera, the optical centre of the refracting media of the observer's eye, and the anticathodal centre of emission of the X-ray focus tube in action, as the case may be. Further, according to these rules, the original position of the centre of projection in

reference to the picture and in reference to the object (at the time of making the picture), is the only correct station point of the observer's one or other eye, when he seeks to observe the corresponding parts in the picture and in the object (supposed transparent) under the same angles point over point, " in perspective " as it is called. This last is in fact the fundamental theorem of ordinary perspective, and this original position of the centre of projection I will call, once for all, the original station point O.S.P. ; and my very paradoxical thesis I hope to exemplify on the present occasion by starting from the simplest case, namely that of the ordinary shadow.

By wrong side of an X-ray picture, therefore, is meant that side of the X-ray picture remote from the focus tube at the time of making the picture ; that is, the image on the fluorescent screen (black on white) viewed in the ordinary way, or the X-ray photographic plate (white or clear glass on black) viewed from its glass side, and the X-ray contact print therefrom commonly so-called viewed from its printed side (black on white). Practically the X-ray fluorescent screen cannot be viewed from its right side adjacent to the O.S.P. ; but in the case of the developed X-ray photographic plate, the right side of the plate is of course the film side, and the right side of the X-ray print is of course the paper side, which is usually sufficiently transparent to be viewed therefrom, or ought to be. The prevailing and initial error in the interpretation of any single X-ray picture is the viewing of them from the wrong side, as above defined, let us say from a station point (which may be called once for all the corresponding station point—C.S.P.) as far on the wrong side of the picture as the O.S.P. was on the right side at the time of exposure, such that the C.S.P. on the wrong side is directly opposite to the O.S.P. on the right side. As I hope to show, this fundamental error involves another, namely of getting

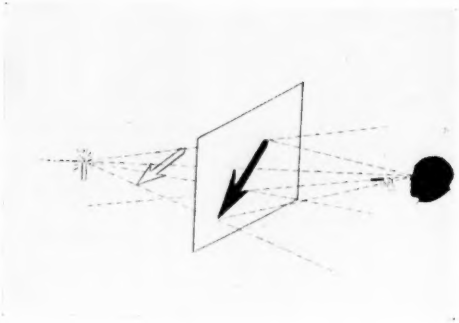

DIAGRAM I.

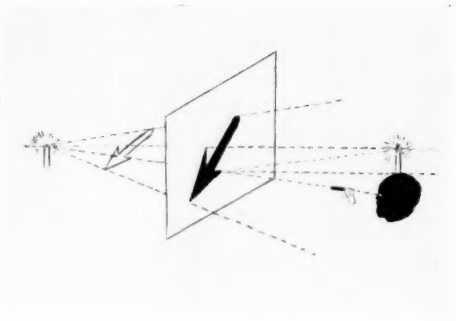

DIAGRAM II.

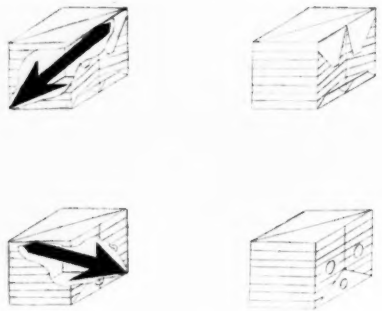

DIAGRAM III.

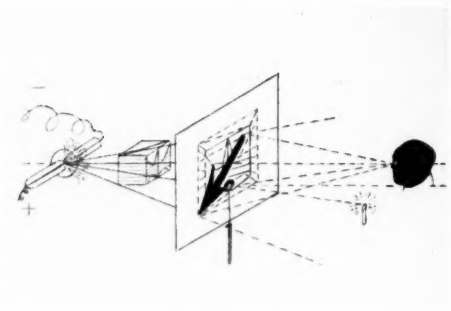

DIAGRAM IV.

on to the wrong side of the object, that side of the object namely that if visible and transparent would show the parts under lesser angles than the parts would be seen under in the X-ray picture.

Diagram I shows a shadow by ordinary light of a spear-shaped object thrown on a screen such as a window-blind. The object is some distance from the screen, and its long axis lies oblique thereto. The observer on the outside of the window has his eye at the C.S.P., the lighted candle being of course at the O.S.P. If he fires at any point of the shadow he is bound to miss that point in the object unless he fires directly at the candle or unless the part of the shadow he aims at has the corresponding part of the object in contact with it.

Further, if the window blind is pulled up he will see every part in the object under smaller angles with the line joining the candle and his eye than he saw each part under in the shadow on the blind when it was down.

But if he could put his eye where the lighted candle is without extinguishing it or hurting himself, or if his eye was itself luminous, then with his eye at the O.S.P. of the candle, to him when the blind was down the object would exactly cover no more and no less point for point its shadow on the blind—that is, the object and its image would be "in perspective." As we shall see presently, the shadow on the blind viewed from the C.S.P. is in form and tone exactly the case of the X-ray fluorescent screen, and of the X-ray print.

Diagram II shows a further development of the same idea. A second lighted candle is now placed at the C.S.P., towards the right-hand side of the diagram, and the surface of the screen is supposed to be highly glazed like the glazed surface of a P.O.P. X-ray print, and sufficiently so to act as a plane mirror, as may easily be done. When the observer sees

DIAGRAM IV.

DIAGRAM III.

the reflection of this second lighted candle fall over that point of the screen which he wishes to hit in the object, then he may be sure (from the laws of reflection of light in the case of a plane mirror) that his eye and the pistol and the point of the object he wishes to hit and its image on the window blind are all in line. This, in fact. is the principle and one of the uses of an instrument called the centroscope, to which further allusion will be made.

With objects of this simple kind X-rays would be unnecessary as long as there was a candle about. In Diagram III I have drawn the usual case of an object to be X-rayed, namely a visibly opaque external object transparent to X-rays, containing concealed internally an object such as that shown opaque to X-rays.

I have drawn this compound object from its back and its front—on the right hand the box is intact ; on the left hand I have displayed the internal spear-shaped object to be X-rayed. This latter object is situated in one of the diagonals of the box as shown. The surface markings on the back and front and sides of the box are intentionally reminiscent of some of the superficial markings of the human trunk.

Diagram IV shows the same idea as in Diagram II, worked out more in detail, in the case of an X-ray tube irradiating a compound object (as in the last diagram) upon the fluorescent screen ; some of the superficial and internal structures of the object are partially indicated, and the internal object is clearly shown. This is also the case of the X-ray contact print. The compound object is being taken ventrodorsally.

Supposing it to be the case of the fluorescent screen, and the observer to have his eye at the C.S.P., I have in this present diagram indicated a second form of the principle of the centroscope. A small circular plane mirror with a central aperture (a plane retinoscope stripped so as to have

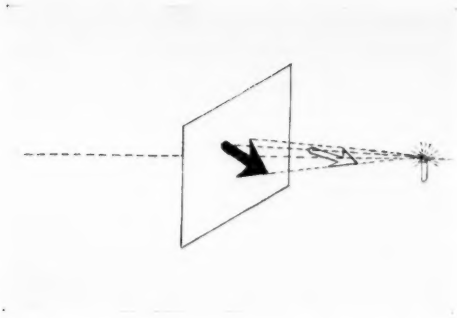

Diagram V.

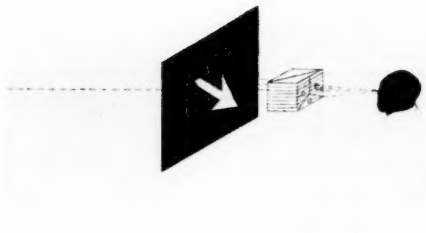

Diagram VI.

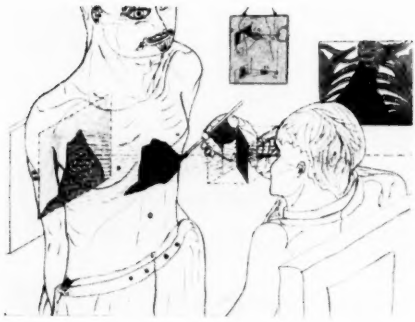

Diagram VII.

its silvered side flush with the plane of the fluorescent screen would do) is placed round the part whose true direction through the O.S.P. is to be ascertained. When the image of a small luminous flame is observed to disappear over the central hole of the retinoscope, then we know (from the laws of reflection of light from a plane mirror) that the candle, the hole in the retinoscope (or centroscope), and the point selected in the object itself are all in line with the O.S.P.

It is not now a question of putting a bullet in, but rather of getting one out! The practical use of such an instrument as the centroscope is probably limited to the case of a foreign body, when only one X-ray picture is obtainable. Further particulars will be found elsewhere, with illustrated diagram.[1]

Diagram V is the same as Diagram I, but drawn from a diametrically opposite side of the scene of operations. It shows the shadow of the same object in the same relation to the screen and to the source of illumination. So we see the shadow on the right side of the screen, that is on the inside of the window blind. This diagram is necessary as an introduction to the next.

Diagram VI shows the observer with his eye at the O.S.P. The object with its face towards him has been X-rayed as before ventrodorsally, but the picture is a developed X-ray photographic plate (white on black) with the film side turned towards the observer, just as according to universal practice the film side was turned to the X-ray centre of emission at the time of exposure. Unfortunately, the visible object is non-transparent, and the observer cannot see the picture of the box on account of its being between him and his picture.

Now there are several things he could do. He could put the object to one side, and look alternately at it and at

his white on black primary picture on glass, preserving the proper position at the O.S.P. of his eye to each (the object and the picture) alternately. Or he might make a carbon print by contact (a green or blue or yellow or red, etc., on white high lights) from his glass plate (white on black), taking care to make only one reverse, and view his object and carbon print alternately in the same way. Or he might reduce his X-ray photograph in size by ordinary photographic means, and have it mounted as a transparency, and hold it at its corresponding distance between his eye at the O.S.P. and the ventral surface of its object if taken ventrodorsally (or its dorsum if taken dorsoventrally).

I have, however, experimentally devised a better way (see Diagram VII). If (with his one eye at the O.S.P., in regard to the object) there be interposed between the object and the eye a transparent flat thin sheet of polished glass inclined at an angle of 45° to the principal visual axis as shown, then with his X-ray print (black on white) to one side at a distance from the centre of the inclined transparent reflector equal to what the glass photographic plate had at the time of exposure, a reversed virtual image (black on white) will be formed on the original site of the glass photographic plate. Mentally this reflected X-ray image is referred to the visible surface of the object adjacent to the observer's eye, and under the proper perspective angles, so that the outlines can be readily pencilled on the surface, as indicated in the diagram. What he sees, his combined view, is indicated on the screen to the left of the diagram—he sees both the X-ray image and the visible part of his object in proper perspective register; while his one eye refers the X-ray image to the near surface of the object, he sees every part under the correct perspective angles, correct alike in form and in tone.

There has recently been much controversy in regard to the position of the stomach according to X-ray pictures, and

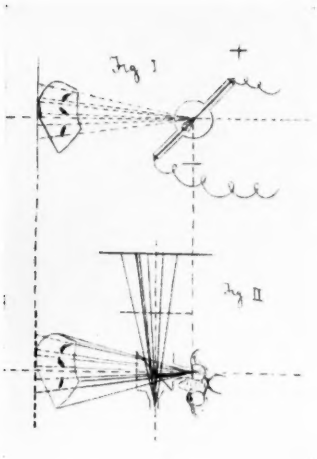

DIAGRAM VIII.

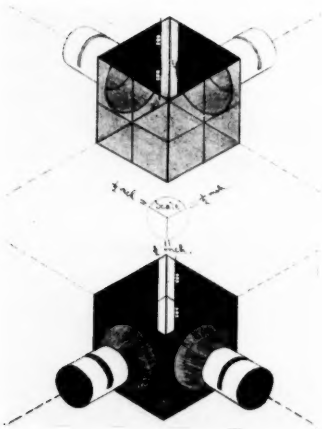

DIAGRAM IX.

according to anatomical investigation. Now, no internal organ can have its position determined from any single X-ray picture; we can only tell therefrom the direction its boundaries will be found in when seen "in perspective." Diagram VII has been published before, but I cannot refrain from introducing it here, as a pictorial record of an actual experiment; it shows the only correct method, by means of an episcope, of outlining on the surface of the body such an outline as the organ would present to the observer's eye at the O.S.P., if the organ were actually visible.

Diagram VIII shows the same experiment in horizontal section or plan. Figure I shows the picture making, and Figure II shows the picture viewing. The transparent inclined reflector (which is very appropriately called the radiographic episcope) is shown, enclosed in a kind of box or camera obscura, with two eye-pieces, the one for centring the visible object and viewing the combination picture, the other eye-piece is for centring the X-ray print (black on white). Either eye-piece can be used with either eye.

Diagram IX shows this form of "enclosed" episcope (in isometric perspective with scale). There is a slit with a hinged flap on the top of the box for inserting or removing the transparent reflector, which should be of thin microscopical cover glass to avoid a double reflection from its two surfaces, but not too thin to be broken in manipulating or cleaning; it costs a few shillings.

In speaking of the second degree of information to be obtained from the diagnostic use of X-rays, I have said we must have first "an exact knowledge of the position of the radiographic centre of emission to the object and to the picture plane at the time of exposure." I have elsewhere shown how very simple this knowledge can be secured.[2]

Diagram X shows a "simplified" and quite efficient episcope, a circular cover glass of about $\frac{7}{10}$ of an inch in

radius, mounted in the cleft end of a wooden match; it costs a few pence. The size is calculated on certain assumptions as to the dimensions of the eye-ball, and as to the position of the optical centre of the refracting media, etc., and gives a "clearance" of an inch. No doubt smaller ones would be practically accurate. The inner edge of the disc may be conveniently inclined against the inner canthus of the eye employed.

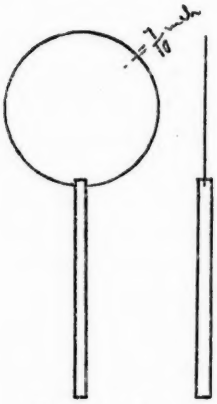

DIAGRAM X.

In using any episcope it must be remembered that the direct image of the uncovered human body is as a rule much brighter and stronger than the partially reflected image of the X-ray print. Just as the pianoforte accompaniment must be played "piano" so as not to drown a feeble soloist, so the object directly viewed must be well in the shade. As suggested long ago[3] in the case of an instrument used in drawing microscopic objects called a "parallel plate reflector" (but really a "simplified" cover glass episcope), the glare may be lessened by tinting the glass. I have little doubt these optical instruments will all be traced ultimately as far-flown chips from Helmholtz's workshop!

I believe I was the first to suggest and work out correctly the application of ordinary perspective to X-ray pictures. All medical authority is against my point of view. Unfortunately Röntgen, unlike Helmholtz, was not himself a medical man, nor did he understand medical or surgical needs and limitations. All were misled, and have continued to be misled, by taking the X-ray negative to correspond with the photographic negative, and the

X-ray print with the photographic print in form, as well as in tone.

The most serious objection I have met with is that the human body and its organs is not a collection of regular geometrical figures. While this is so, it must be acknowledged firstly, that the parts of the body likely to come under the purview of the radiographer, namely the bones and joints, and bony cavities and segments, and such organs as the heart, are of very definite and characteristic shape and arrangement, and differ normally in different individuals of the same period of life merely in size—at least, we have to assume so in the first instance in most cases of physical examination for clinical comparison for the purpose of detecting the abnormal; and secondly, it must be acknowledged that the cone of X-rays used in X-ray diagnostics has very definite mathematical relations and properties in the way of projection.

For example, in Diagram XI is represented a section of a portion of the living body in which a metallic projectile has become lodged. X represents the O.S.P., and X^1 the C.S.P., where the observer has his eye. The dotted lines diverging from X represent the conical space in which the bullet lies; the dotted lines diverging from X the conical space in which the unwary observer at C.S.P. may judge

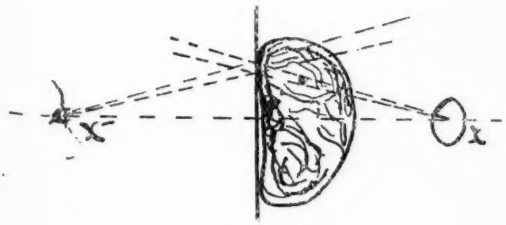

DIAGRAM XI.

the object to be. This, of course, is a case where the centroscope may usefully be employed.

Again, in Diagram XII is represented a vertical section of a fracture of both bones in a swollen limb ; X and X ^{1} are as before the O.S.P. and the C.S.P. respectively. Now as indicated by the dotted lines, the observer at X ^{1}, judging

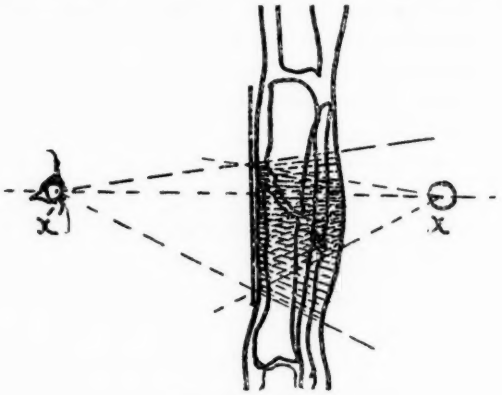

DIAGRAM XII.

by the visible portions of the limb, must have a very exaggerated idea of the extent of the lesion, as compared with what an observer will have with his eye at X, and enjoying in some way a perspective view from O.S.P.

Putting aside such an abortive monstrosity as the instrument known as the orthodiagraph, by the use of parallel X-rays (tele-Röngtenography) instead of widely-divergent X-rays from a focus tube near the object taken, the practical clinician, especially the practical surgeon (who needs to work within arm's length), will lose more than he gains. This being so, I am inclined to think that till the day comes (it may of course be to-morrow) when we will be able to photograph by means of a suitable pin-hole camera and some suitable sensitive film, concealed objects by the

secondary rays they emit when irradiated from a focus tube, the episcope and the principles of correct perspective may lead to great advances in the clinical uses of X-rays as a diagnostic, both medical and surgical.

I cordially recommend the whole subject to the attention of what I may call the younger generation of X-ray workers; clinical radiography still needs a Laennec or a Skoda. Correct theory tends to correct practice, and incorrect theory to fallacious practice; with the former the practical man may go wrong, with the latter he may go right. For example, there is the reported instance of the Viennese professor who examined a large number of patients by percussion and by X-rays, and came to the result that in no case did the outlines of the heart by these respective methods correspond. A knowledge of perspective would have enabled him to say so, without leaving his chair.

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[3] *Outlines of Practical Histology*. William Rutherford. London: J. & A. Churchill. 1878. Pp. 45 and 46.

SPIRITUAL HEALING: A REVIEW.[1]

THIS is a very interesting book, not because it brings forward any freshly-discovered facts, but because it is typical of the current thought of the age. At an earlier period of church history it was formally held that all nature is directly subject to the Divine will, and more advanced thinkers, the men who worked out a system of Christian theology, were convinced that this Divine will was directed to the carrying out of some ordered scheme, whose details, indeed, were not completely known to us. This was the "theological" position. The "popular" attitude suspected that there might be some corners which had perhaps escaped the Divine intelligence, and in these obscure recesses it was possible that magic might effect something. The doctrine of an Almighty and All-wise Deity has always contained a serious element of difficulty.

In these later days scientific discovery has revealed an outline, in some places filled in with some detail, elsewhere admittedly rather sketchy, of what we may reasonably regard as an ordered scheme, at any rate so far ordered that it excludes aimless caprice and pure accident. So far this fits in closely with the general theological ideas of such men as Origen, Justin Martyr, St. Augustine, and the scholastics. Admittedly their attempts to fill in details connected with natural science were usually incorrect, but the general idea of an ordered and harmonious scheme, the assumption which still remains at the base of what may be termed orthodox theology, is more or less implied in modern science. But official theology (taking the term to mean the logical development of those traditional teachings which the early

[1] *Spiritual Healing: Report of a Clerical and Medical Committee of Enquiry into Spiritual, Faith, and Mental Healing.* Pp. 56. London: Macmillan & Co. Limited. 1914. Price 1s. net.

Fathers drew partly from revelation and partly from Greek philosophy) has never quite represented the ideas of the numerical majority in the Christian community. Thus popular opinion still inclines to the idea that there may be here and there remote corners to which the Divine will and the Divine wisdom possibly do not extend, items which are too insignificant to work into any scheme, and do not matter much any way.

Now this book before us certainly inclines to such an idea. It seems, at any rate, half implied throughout that it is desirable from the Christian point of view to be able to believe in "miraculous, Divine help from outside, non-physical and outside the ordinary laws of nature" (p. 52). This is expressed by one witness in the statement that "he should like to think it existed" (*id.*), and constantly implied in the reluctance to rule out the "non-physical," presumably from the fear that so doing would hurt the feelings of devout persons. Logically this means that cures can be divided into two classes: the larger one where the cause of healing is known and can be referred to the "ordinary laws of nature;" another class, numerically smaller, in which the cause is not identified, and so the hope is allowable that it may perchance be due to "miraculous, Divine help from outside." In other words, religion is allowed a small residuum in which diagnosis of the cure has failed, and by implication Divine help is only recognised where the method of healing eludes identification. To the scientist this must seem a very unsatisfactory position, for scientific progress is always reducing the number of these elusive phenomena, and he will naturally be inclined to say that the unidentified are simply those which are not yet identified. But to the Christian thinker the position is not simply unsatisfactory, it is suicidal. The more primitive pagan religions may regard their deities as sometimes subject to the laws of nature, sometimes able to elude them; but Christian theology takes ultimate causality as essentially one of the attributes of deity. Physical ordinary laws of nature are laws because they, like creation itself, proceed from the Divine will, and the order observable in nature is there because it

reflects a harmonious scheme or idea in the Divine mind, a doctrine already stated by Clement of Alexandria, and in the Epistle to the Hebrews. Whether, therefore, healing of the sick can be directly traced to some known law, that is to say, can be associated with some generalisation drawn from observation of nature, or cannot be definitely traced to any law as yet known, the Primary Cause from which all nature and all nature's laws proceed stands behind as the One responsible. "Ordinary laws of nature," the psychological phenomena of suggestion, etc., are theologically in the same category with the "miraculous." Scientifically they may be divided between the fully-explored field and the *terra incognita*, *i.e.* that *as yet* unexplored, but the distinction is subjective.

It is true that the Report before us very properly states that Divine power usually works through what it calls "natural channels"—for so we read pages 15, 16—but then the members feel it necessary "to express their belief in the efficacy of prayer" (p. 15). True, theology cannot quite reconcile the effect of prayer with the all-embracing sphere of a Divine will: prophets pray for the coming of Christ, which is already ordained by that will, and Christians pray for the coming of "Thy kingdom," which is equally ordained; but it is perfectly clear that all prayer is subject to the petition "Thy will be done."

Elsewhere this Report seems to base the value of prayer, of Holy Unction, of laying-on of hands, etc., on recorded instances of benefits which have followed, and which cannot be reduced to terms as results from known physical causes. Surely the sounder view, and incidentally the traditional one, is to base the evidence for any means of grace upon the historical fact of their Divine ordinance. Mathematical computation of immediate and material benefits does not appear a very satisfactory line of argument, especially when these benefits are reduced simply to the meagre number which has baffled diagnosis.

There are in this Report very many other points which are extremely interesting. The point which strikes the reader most pleasantly is the readiness to consider the views expressed by the different witnesses, views which could not, in some cases,

have quite agreed with those held by members of the committee either in theology or in natural science; and with this the implied admission that knowledge in either field is yet incomplete, an admission already very frankly expressed by St. Paul (1 Cor. xiii. 12).

Progress of the Medical Sciences.

MEDICINE.

Diet in Diseases of the Heart, Vessels and Kidneys.—Dr. Karl Frenkel[1] gives a useful summary of recent work on this subject. With regard to the *heart*, the object of dietetic treatment is to strengthen and maintain its muscular capacity. So long as there is likely to be active endocarditis the patient should be placed on fever diet, with restriction of fluids.

In chronic heart disease the aim is to bring the patient into a normal state of nutrition, and to keep him there. Superfluous fat makes the work of the heart difficult, and leads to its early failure. Defective nutrition is equally injurious. Eppinger has shown that in this condition an hypertrophied gives way before a sound heart. In obese cardiac patients dietary restriction should not be carried beyond a certain point, and further removal of fat should be gradually accomplished by carefully regulated exercises. Only if the patient is unable to get about should dietary restrictions for the removal of fat be actively pushed.

Oertel advised a diet rich in proteids, up to 150 grammes per diem, but later authors limit the amount from 80 to 120 grammes. All authors advise either a very limited use of alcohol, or total abstinence, especially from strong alcoholic drinks, *e.g.* brandy and liqueurs. Beer is inadvisable, not so much on account of its alcoholic content, but because of the amount of fluid, and of the sugar it contains, which provides superfluous nutrient material. Strauss advises coffee, especially prepared to diminish the amount of caffein. Weak tea, coffee and soups may be taken in large amounts, unless contra-indications exist. The use of tobacco must be strictly limited.

With regard to the amount of fluid, in well-compensated heart disease, most writers restrict the quantity; some insist on fluid being taken only at meal times, whilst others make no

[1] Schmidt's *Jahrbücher*, 1914, ccxix. 124.

restriction. The balance of evidence seems in favour of a moderate restriction of fluid.

In failure of compensation meals should be small, and intervals of feeding more frequent. In view of the failure of the digestive juices, and of the loss of appetite, the food must be varied in character, in order that the patient may be induced to take enough to maintain his nutrition and that of the heart-muscle, which is the all-important point. In acute heart failure the temporary stimulating effect of alcohol should be utilised. In the milder forms of disturbance of compensation, such as dyspnœa and nocturnal micturition, in addition to rest in bed and the administration of cardiac tonics, the amount of fluid is to be limited to 1¼ or 1½ litres daily. This restriction of fluid increases the efficacy of digitalis. Spices and salt should be forbidden, the elimination of the latter by the kidneys is difficult, and in the most severe cases of heart disease may fail as it does in parenchymatous nephritis, whilst retention of salt leads to retention of water in the tissues. Whilst in mild disturbance of compensation restriction of fluid seems to promote recovery, V. Noorden, Kraus and Strauss consider that it does not do so in severe cases, and they remove all restriction if the patient suffers much from thirst, or is losing his appetite.

For severe cases of cardiac dropsy, in which digitalis has failed, the milk cure, first employed by Karell and since modified by Lenhartz and Jacob, has come into general use. For five to seven days the patient takes 300 cc. milk, hot or cold, four times daily, at four hourly intervals. Nothing else is taken, he stays in bed during the whole cure. Generally a pronounced diuresis sets in on the third or fourth day. The condition of the blood pressure varies. During the next two to six days, between the feeds of milk, an egg, rusks, some black bread, vegetable soup and meat is allowed. On the thirteenth day he returns to his ordinary diet, with the exception that for two to four weeks the total daily quantity of fluid is limited to 800 cc. If the first cure is not successful, a repetition of it after two to three weeks, with the administration of cardiac tonics, often brings about the desired result. Causes of failure of the cure are that the heart disease is far advanced, or is complicated by nephritis or uræmia. The success of this treatment is attributable to the rest given to the organs of digestion and assimilation by the temporary restriction of nutriment and fluid, and to the absence from the food of salt and of irritative substances.

With regard to *arterio-sclerosis*, there is nothing fresh to report as to dietetic treatment. Most authors advise the limitation of proteid foods to an amount not exceeding 60 to 80 grammes daily, with the use of milky foods, vegetables and

nuclein-free foods. When symptoms appear many recommend an exclusively milk diet for two weeks.

Opinion is practically unanimous as to the advisability of restriction of salt in all forms of *nephritis*, especially in those forms in which there is œdema, or any tendency to it. As regards food, this is attained by (1) baking bread without salt ; (2) using butter made without salt ; (3) limiting the quantity of milk to 1 litre or less daily ; (4) all cooking to be done without salt ; (5) soups and broths are forbidden ; (6) vegetables to be washed a long time in water before cooking.

In cases of contracted granular kidney without uræmic symptoms, the daily amount of proteid should be reduced to 80 grammes. 80 to 110 grammes is considered necessary by v. Noorden, and every week on one day only 20 to 30 grammes is allowed. The latter amount would be contained in a dietary composed of bread, cereal foods, fruit, vegetables, butter, and half a litre of milk. Less proteid than the above is insufficient to maintain the nutrition of the cardiac muscles, one of the most important considerations in chronic renal disease. In order to dilute the uræmic poisons, as well as to wash out the tissues, Strauss endeavours to excite free diuresis. For this purpose he gives in contracted kidney with good cardiac compensation, and in the first stage of chronic uræmia, enough fluid to produce a daily flow of 1500 to 2000 cc. of urine. If at the onset of uræmia so much fluid cannot be taken by the mouth, he orders, even in the presence of œdema, drop-instillation of pure water per rectum. If heart weakness threatens the amount of fluid drunk is reduced by half to three-quarters litre, or the Karell milk cure (see above) is instituted. If heart weakness and uræmic symptoms occur simultaneously, the former is treated by rest and digitalis, and the amount of fluid ingested is not diminished. Herz advocates a similar course of treatment. v. Noorden is against the use of such large amounts of water, because he thinks that it may lead to heart failure early in the case. He allows the patient sufficient water to keep the quantity of urine at 1300 to 1500 cc., because the researches of Mohr and Dapper show that nitrogenous excretion is not hindered until the daily quantity of urine falls below 1250 cc. Every week the patient is allowed to drink as much water as he pleases on one day, and if the heart condition is good, for a period of fourteen days in every two to three months a " drink cure " is carried out, the patient taking two to three litres of water daily. v. Noorden justifies the restriction of fluid by his observation that it brings about a fall of blood pressure from 30 to 50 mm. Hg. Other writers think the best results in cases of contracted kidney are given by following a middle course, and allow 1½ litres of water per diem.

In acute glomerular and parenchymatous nephritis, in the

exacerbations of chronic parenchymatous nephritis and of chronic interstitial inflammations, the excretion of water by the kidney is disturbed, as a primary symptom, and careful consideration of this factor is needed. If too much fluid is given, the result is an increase of œdema. The amount of fluid should therefore be restricted, so far as the patient's thirst, which is often great, allows, to about 1500 cc., and elimination promoted by vapour baths, until a spontaneous diuresis is established. When diuresis is free all authors advise administration of abundant fluid.

Full references to the recent literature are given at the end of this article, *q.v.*

On the present state of our knowledge of " Occult " Hemorrhages from the Stomach and Intestines.—Prof. Boas discusses this question in an exhaustive paper.[1] In the first place it is necessary to exclude traces of blood coming from outside the stomach and intestines, *e.g.* from the nose, mouth, throat, lungs, etc.; and secondly a still more important source of confusion arises from blood-containing foods, *e.g.* all kinds of meat, fish, which will give a reaction with the delicate tests employed indistinguishable from that due to small hemorrhages (exogenous occult blood). The more delicate the tests the more likely are mistakes from this latter source. The rule generally given is that for the guaiac-turpentine test four days' abstinence from flesh and fish is sufficient to exclude errors of this kind. Boas considers this period much too short for the recent modifications of the guaiac-turpentine and the more delicate tests now used; moreover, the absence of muscle fibres from the fæces, on which reliance has been placed, does not exclude a positive reaction to the blood tests from exogenous (food) material.

Information as to the origin of occult blood from stomach or intestine can be obtained from simultaneous examination of the stomach contents and the fæces. If both give a positive reaction, the inference as to source is certain. If one is positive and the other negative, further observations over a period of a few days will as a rule make clear the source of the hemorrhage. In every case examination of both stomach contents and fæces for occult blood should be carried out. There are no distinguishing characteristics between the reactions given by small hemorrhages (endogenous blood) and those given by meat or fish diet (exogenous blood) With the tests in present use the patient should abstain from flesh and fish for seven to ten days; vegetables containing chlorophyll should also be excluded. It is not necessary in every case for the preliminary fast from meat and fish to be so lengthy: with the use of fish and white

[1] Schmidt's *Jahrbücher*, 1914, cccxix. 225–237.

meats the guaiac-turpentine test generally soon becomes negative, and a strongly positive reaction after a few days points clearly to the endogenous origin of the blood.

For the distinction between simple ulcer and carcinoma, especially of the stomach, occult blood will very soon, generally within fourteen days, disappear in cases of ulcer; in those of cancer it will continue in spite of dietetic and medicinal treatment.

Only seldom is a single testing sufficient to show occult blood, but in well-marked cases two to four observations suffice to establish the diagnosis. In most affections, especially in ulcer, the cessation of occult bleeding is of equal diagnostic importance to its presence. Only three tests of those in use need be considered:—

1. The original guaiac-turpentine test. Boas advises a modification of the original method. Instead of water the fæces are mixed with glacial acetic acid and alcohol (1 : 3): this is a more powerful solvent for hæmatin than the acetic ether formerly used. A small portion of the fæces are rubbed up with 20 cc. of acetic alcohol solution in a porcelain dish, filtered through a moist filter, allowed to stand, and then filtered again. If the filtrate is a deep brown, from the alcohol taking up colouring matter of fæcal and vegetable origin, it is diluted with alcohol to a yellowish colour, and then guaiac-turpentine added in the ordinary way.

2. The benzidine test. This test is about eight times more delicate than the first one. It is unnecessary to describe the ordinary method of carrying it out, but when the amount of blood is extremely minute, the reaction may be interfered with through anticatalytic bodies in the fæces, which are especially abundant on a vegetarian diet. This inhibitory action may be prevented by boiling the small portion of fæcal matter used, or by triturating with glacial acetic acid. Boas for this test also recommends the use of acetic acid and alcohol.

3. The phenolphthalein test. The principle of this test lies in the fact that in the presence of blood the colourless phenolphthalin is changed into phenolphthalein. According to the ordinary mode of doing the test, it lies midway in delicacy between the first two tests. Boaz finds that by using the glacial acetic alcohol described above for extracting the fæces the reaction is much more delicate: it has the advantage of being sharper (better defined) than the others. The reagent is made by dissolving phenolphthalein one grm., potass. hyd. fus. 25 grm. in water 100 cc., and adding powdered zinc 10 grm. The mixture is heated over a small flame with constant shaking until completely decolourised, and is then filtered whilst hot.

To the filtered extract of fæces prepared as in the other tests ten to fifteen drops of the solution are added, and three to five drops H_2O_2 solution. In the presence of much blood the mixture is a carmine red, with smaller quantities a rose red, and in minimal amounts reddish. Excess of acetic acid is to be avoided, as it would render the reaction negative, and if the mixture gives an acid reaction a few drops of liq. potossæ should be added. The patient must, of course, not take aperients containing phenolphthalein, and must be eight to ten days on a diet free from flesh and fish, before it is certain that a positive reaction is due to endogenous blood.

In order to get the fullest information from these tests observations must be carried out daily, that the course of the occult bleeding may be followed. It is hardly necessary to add that all vessels and test tubes employed must be scrupulously clean. The investigation of occult blood aids in the diagnosis between peptic ulcer and cancer. The presence of blood at first in undoubted quantity, then gradually diminishing, and finally disappearing, is in favour of an ulcer, whilst the steady persistence of bleeding speaks strongly for a malignant growth.

There are not infrequent cases in which severe pains occur after meals, but in the absence of other positive signs the diagnosis between the neuroses and inflammatory lesions cannot be made; in such cases a systematic investigation for occult blood will often clear up the case.

In cases of acute peptic ulcer an attack of hæmatemesis or melæna is followed by a longer or shorter post-hemorrhagic stage, in which only occult blood is found. The same condition is found in those cases of chronic ulcer, with a long history of hyperchlorhydria with pain, in which sooner or later a sudden hæmatemesis or melæna occurs. There are further cases of ulcer of very long duration, in which no manifest hemorrhage ever occurs. In these cases, with the delicate tests in present use, the presence of occult blood can almost always be demonstrated. So long as an ulcer, whether acute or chronic, is not healed there must be bleeding, though it may be in minimal quantity.

If on the other hand, in spite of clinical symptoms of gastric ulcer, blood is persistently absent, there can be no active ulceration, and the symptoms are due to some of the numerous complications, *e.g.* hyperacidity, perigastritis, pyloric stenosis, hour-glass stomach, etc.

A negative result is important in another direction as an aid in the often difficult distinction of ulcer from affections in which the stomach is secondarily disturbed, such as cholelithiasis, atypical cases of chronic appendicitis, and affections of the kidneys.

To sum up, in an active ulcer sufficiently careful investiga-

tion will always show the presence of occult blood, and where a diagnosis of ulcer has been made and no bleeding is found, the diagnosis is either incorrect or the symptoms are due to a healed ulcer with complications, for a healed ulcer without complications should give no trouble.

Further, is the presence of occult blood always due to an ulcer, or may it be due to hemorrhagic erosions? The author thinks it impossible to be certain on this point, nor does he consider it important, for such cases should be treated as ulcer.

With regard to other kinds of ulceration, especially tuberculous, nothing certain is known as to occult blood. Statements as to its presence are at variance—there are some positive, but mostly negative findings—and the published material is still too small, and not sufficiently verified by post-mortem examinations, for any positive statement to be made.

Occult blood in malignant growths of the alimentary canal.—The clinical importance of occult bleeding in carcinoma rests upon the fact that the large majority of all carcinomatous growths tend to ulcerate sooner or later, irrespective of their position in the alimentary canal, and as this ulceration shows no tendency to heal, it follows that occult blood, once present, tends to persist permanently. The constant presence of occult blood with other clinical signs suggesting carcinoma is therefore a most important aid in diagnosis.

In carcinoma of the œsophagus, occult blood, though very frequently present, is not very important, because of the other means of diagnosis available in this situation.

In cancer of the stomach occult blood is present in the fæces in 95 per cent., the Mayo Brothers say 100 per cent. of cases, where the diagnosis has been confirmed by operation or post-mortem. Conditions which favour a negative reaction are great stenosis of the pylorus, obstinate constipation, and where the small hemorrhages are not thoroughly mixed with the fæces. But in such cases, if the patient is put on a fluid diet, and the actions rendered loose, a positive result will generally be obtained.

The discovery of occult blood is of great help in the differential diagnosis of—

1. Cases of gastric cancer, without a palpable tumour, and in which the only symptoms are those of profound anæmia.

2. Cases of scirrhus of pylorus, with presence of free HCl in gastric contents. Occult bleedings may decide the question of a benign or malignant stenosis of pylorus.

3. The development of a simple chronic into a malignant ulcer: the persistent presence of occult blood is in favour of the latter.

4. Similarly it points to a tumour in the upper abdomen of doubtful nature as one of gastric origin.

5. The test may be useful in ascites of uncertain origin.

In carcinoma of the colon Prof. Boas states that the test is positive in 85 per cent. of cases. A possible source of failure of the test is stenosis of the bowel, so that small quantities of blood fail to pass through, and in a single examination are missed. He recommends then that the bowel should be thoroughly washed out, and the last washings examined for blood. The importance of the test is practically confined to growths originating between the cæcum and splenic flexure: below this other means of diagnosis are now available.

Boas has no doubt of the value of occult bleedings in the early diagnosis of abdominal malignant disease, for they are often present much earlier than the ordinary pathognomonic signs of tumour, and we are therefore in a position to make a positive diagnosis in an earlier stage than was possible before their importance was recognised.

Lastly, the presence of occult blood is an aid to treatment, by indicating the nature of the food, etc., suitable to the case. Attention to this point will often save the patient on the one hand from being kept unnecessarily long on a fluid diet, and on the other from being allowed to get about and to take ordinary diet too soon. Careful investigation of the fæces for occult blood should be carried out over sufficiently long periods of time in all cases of gastric ulcer if the treatment is to be conducted on rational principles.

J. MICHELL CLARKE.

SURGERY.

The Surgical Treatment of Gastric Ulcer.—This subject has recently been carefully considered by Prof. Georg Perthes,[1] of Tübingen, and the abstract from his paper, given below, cannot, we think, fail to interest our readers.

The paper is based upon cases treated in the three years from February, 1911, to February, 1914. In that period there were 102 operations for gastric ulcer, of which 55 were gastro-enterostomies, 35 resections, and 12 operations for acute perforations. It is mainly with the group of resections that the writer deals.

Ulcers of the Smaller Curvature of the Stomach.—In the German Surgical Congress of 1912 Albert Kocher expressed the view that all forms of gastric ulcer, whether at the pylorus or elsewhere, were favourably influenced by gastro-enterostomy.

[1] *Deutsche Ztschr. f. Chir.*, 1914, cxxix. 464.

Perthes has not found this to be the case. He agrees with all or most surgeons that gastro-enterostomy leads to the healing of pyloric ulcers, but has found that ulcers of the small curvature of the stomach are often quite uninfluenced by the operation. It is partly by radiography, partly by secondary operations that this fact has been established. Radiography clearly showed in three cases quoted that callous ulcers of the lesser curvature of the stomach had persisted and enlarged in spite of successful gastro-enterostomies performed a long time previously. The first case showed that the ulcer had penetrated deeper, forming a typical accessory-cavity to the stomach (*Nebenhöhle*), although the hyperacidity existing before gastro-enterostomy had disappeared and bile was present in the stomach contents. The gastro-enterostomy opening had in this case been acting well for two years. In the second case the gastro-enterostomy had acted well for five years, but the ulcer had become much deeper.

The three cases showed further that it was the spastic contraction of the stomach at or near the place of ulceration which caused the advance of the disease. Other writers (Aschoff, Bergmann) had previously pointed out how ulcers set up reflex spasmodic contractions of the stomach, on the greater curvature and at the pylorus, which in turn caused local or general retention of stomach-contents adversely affecting the ulcers. Perthes found in fourteen cases of penetrating ulcer of the small curvature submitted to radiography that in six the spasmodic contraction of the stomach was in the ulcerated segment, but in the remaining eight the ring of contraction was immediately distal to the ulcer. Many times the spasmodic stenosis was tubular and of extraordinary narrowness. It appears that in many cases there is a vicious circle, the ulcer sets up spasm, the spasm causes advance and chronicity of the ulceration. Gastro-enterostomy does not prevent the occurrence of these spastic hour-glass stomach contractions, but the contractions prevent the anastomotic opening favourably influencing the ulcers. On the other hand, transverse resection of the portion of the stomach bearing the ulcer cured both ulcer and spasm.

Not only may ulcers of the small curvature set up spasmodic contractions near the ulcer, but, as observed by the writer in numerous cases, they caused spasm of the pylorus with distention of a second distal segment of the stomach. All forms of spasm cease after transverse resection and the stomach empties itself normally or quicker than normally. Perthes concludes that the proper proceeding for callous penetrating ulcer of the smaller curvature is transverse resection of the stomach, and he also regards such resection as the operation of choice in ulcers of the small curvature which are not callous.

Ulcers of the Pylorus.—The indications for the treatment of pyloric ulcers by resection are not so definite. For simple ulcers, active or cicatrising, it is unquestionable that gastro-enterostomy is the operation of choice, with or without pyloric exclusion. Callous ulcers too are frequently cured by the operation. But in callous ulcers the relation of ulceration to the development of carcinoma has a bearing in the choice of operative methods of treatment. In this connection Perthes discusses separately two aspects of the problem, the possibility of mistaking the diagnosis and the possibility of the secondary development of carcinoma in the ulcer.

It is well known that neither previous clinical investigation, nor exploratory laparotomy, nor naked-eye examination of specimens, will always enable the distinction to be made between a callous ulcer and a carcinoma. Even the microscopical distinction in the hands of skilled pathologists presents many difficulties. As to the frequency of malignant change in ulcers of the stomach opinion is much divided. Investigations may be made to establish the percentage of gastric ulcers which show malignant change, or cases of carcinoma may be investigated to discover the percentage of them which appear to have begun as simple ulcers. Perthes considers that the duration of symptoms in cases of carcinoma affords light. In 119 cases out of 156 the symptoms of stomach trouble had not lasted more than two years, and this seems to show that in the vast majority of cases the carcinoma was primary. In fifteen cases there had been symptoms for more than ten years, suggesting that the trouble began in them with simple ulceration. Again, in four cases hæmatemesis had occurred at intervals for more than three years, suggesting primary simple ulceration. But such a history is rare, and again points to the conclusion that it is rare for carcinoma to begin as a simple ulcer. Another fact, pointing the same way, is that very few cases are recorded by operators in which a patient has died from gastric carcinoma after gastro-enterostomy performed for supposed ulcer. But when these statistics concern callous ulcers only, the subsequent death-rate from cancer is greater.

Perthes, in view of the difficulty of diagnosis, and the undoubted danger there is of malignant transformation, adopts the practice of resecting callous ulcers of the pylorus when the patient's condition is favourable and the resection presents no special technical difficulties. The suggestion is made that as the secondary carcinomatous tissue can be more easily found in the glands than the stomach ulcers themselves, it would be well if during operation a pathologist made a section of a gland by the freezing method and reported to the surgeon, a procedure which could be carried out in ten minutes.

Technique of Stomach Resection.—The most suitable and

successful cases of resection are those performed for penetrating ulcer of the small curvature. The operation is easier if a transverse abdominal incision be added to the vertical one. It is made two fingers breadth above the umbilicus, and carried to the thoracic margin. Before dividing the rectus muscle and its sheath the writer sutures the muscle and sheath with catgut sutures, passed in a transverse row, three sutures above and three below the line of the intended division. These retaining sutures prevent retraction of the rectus muscle and much facilitate closure of the wound later, for the muscle can be neglected and the two fascial layers, anterior and posterior, alone sutured. If the ulcer cannot be separated from adherent parts without opening the stomach cavity, then the stomach contents, if any, are sucked out through a tube.

For the resection itself clamps are applied, slightly modified Lane clamps, and the suturing is carried out much as in gastro-enterostomy. When one segment of the stomach has a calibre larger than the other, this aperture is narrowed to the size of the smaller one by means of a "tobacco-pouch suture," which is tightened up to the necessary degree. This gathering suture does not interfere with the sutures applied later to join the two stomach segments.

If the pylorus has to be resected for cicatricial stenosis or cancer, then the junction of the stomach to the intestine may be well carried out by Reichel's modification of "Billroth's method ii." This modification consists in uniting the side of the highest part of the jejunum to the severed end of the stomach. In carrying this out the size of the stomach opening may well be diminished as described above.

Results of the Operation.—Simple transverse resection was done for seventeen cases of ulcer, and there was no death. The pylorus was resected seventeen times with two deaths. No abdominal hernia followed the operations. The results were favourable in all the cases, fifteen out of seventeen of the former class, which could be followed up. But of the fifteen cases traced eight had a more or less constant feeling of hunger. Many improved in this respect with time, but others had to take some food every two hours to feel comfortable.

X-ray examinations have thrown some light on this phenomenon of hunger. Two types of results were demonstrated. In both types the stomach was naturally smaller than before operation. In this first type the stomach appears as a uniformly wide sack or tube united at its lowest point to the pylorus. In the second type, with on the whole a larger stomach, there is present a considerable bulging on the lower curvature, and the pylorus lay not at the lowest part of the stomach, but higher up near the small curvature. In the second type more of the great curvature had been left at the operation.

In cases of the first type the food passed quickly through the open pylorus into the duodenum. In cases of the second type there were traces of the barium meal still in the stomach after five or six hours. The cases in which hunger was an after-symptom were those with the first type of stomach. This shows that a good portion of the greater curvature should be left at the operation. All the patients increased in weight and improved in general condition, and there was no trouble with over- or under-action of the bowels.

The function of the gastro-enterostomy opening in cases of Permeable Pylorus.—Henri Hartmann, of Paris, brings forward interesting points in discussing the above problem. The problem is a double one, and stated in the form of two questions :—

1. *Does the anastomotic opening become obliterated if the pylorus remains patulous?* Kelling suggested that the opening might undergo anatomical obliteration if chyme passed by the pylorus and not by the anastomotic opening, and this opinion has been widely accepted. Hartmann does not support it, and writes that " when we refer to the cases of anatomical obliteration we see that these obliterations are in no way connected with the permeability of the pylorus."

In forty-five cases of such obliteration gathered from literature the writer only found four with permeable pylorus. In seven cases the obliteration was due to the cicatrisation of a peptic ulcer at the anastomotic opening. In twenty-three cases of obliteration buttons were used, in four cases sutures only, and in three Y-shaped gastro-enterostomy was performed.

2. *Are the gastro-intestinal anastomoses functionally useless in cases of permeable pylorus?* In answer to this question the writer quotes Guibé,[1] who wrote in 1908, " All the experiments in animals and observations on men seem to agree sufficiently to prove that as long as the pylorus remains permeable, the stomach has an almost invincible tendency to drive out its contents through this orifice without being inclined to utilise the artificial mouth. Nothing whatever passes through the new opening; on the contrary, everything passes through the pylorus."

Hartmann next quotes many recorded observations in which X-ray examinations were made, and in which it was clear that with permeable pylorus the gastric contents passed either wholly through the anastomotic opening or through that and the pylorus. Then he records experiments carried out on dogs, which showed that the evacuation is made principally by the anastomotic opening if that is situated in the pyloric antrum, but through the pylorus if the anastomotic opening is situated

[1] *J. de Chir.*, 1908, i. 1.

in the fundus of the stomach. The explanation lies in the pressure exerted on the chyme by the stomach contractions, which are much stronger in the pyloric segment of the stomach.

Radiological examinations in man have confirmed the above views. The examinations must, however, be skiascopic. Hartmann has almost always made the anastomosis on the lowest part of the pyloric antrum. Examination of nineteen patients at intervals of one to eleven years after operation showed that once everything passed through the pylorus, eleven times everything passed through the anastomosis, seven times the passage was through both openings.

J. LACY FIRTH.

Reviews of Books.

System of Surgery. Edited by C. C. CHOYCE, B.Sc., M.D., F.R.C.S. Pathological Editor: J. Martin Beattie, M.A., M.D., C.M. Vol. III. Pp. xvi, 901. London: Cassell & Co. Ltd. 1914. Price 21s. net.

The present volume is the last of the series. Reviews of the two preceding have already appeared in the pages of this *Journal*. The majority of the articles are extremely good, though a few seem unduly condensed and sketchy in parts.

Special mention must be made of an article by Morriston Davies on the surgery of the lungs and pleuræ.

So much intrathoracic work dates from the time when intratracheal insufflation anæsthesia came into use, that very little can be found about the surgery of the chest in the majority of surgical works.

Mr. Davies gives an excellent account of the operative procedures which have been carried out up to the present. Time alone will show which of these are destined to survive, and to what extent the surgeon will come to the aid of the physician in the treatment of such diseases as pulmonary tuberculosis and bronchiectasis. In the "Surgery of the Cardio-vascular System" will be found the principles which govern the successful suture of vessels. A clear account is also given of the modern surgical treatment of aneurysms.

There is a very useful article by Sherren on injuries and diseases of nerves. It should often prove a handy reference for those surgeons whose memories of anatomy are getting a

little rusty. The articles on the brain and spinal cord are among the best in the book. They are admirably compact, lucid and well reasoned. The surgery of the bones and joints is well up to date, and a special article is devoted to the treatment of fractures.

Speaking of the manual as a whole, it may safely be said that it is quite one of the best which has appeared in recent years. It is certainly destined to take its place among our standard works on surgery.

The Practice of Surgery. By RUSSELL HOWARD, M.S., F.R.C.S. Pp. viii, 1227. London: Edward Arnold. 1914. Price, 21s. net.

This is a good book, and supplies a real need. It is very clear and concise, omits freaks and varieties, and is not overburdened with pathology or details of operations which no one but an expert should attempt. It aims at providing a textbook for the student reading for the colleges or a pass degree, and we think he will find it simpler and clearer than some of its competitors. It is eminently practical, and devotes adequate attention to everyday surgery. It is well up to date. The illustrations are numerous, and with a few exceptions (figures 30, 341, 443) clear and artistic.

The points upon which we venture to differ from the author, or where we think the book could be improved, are all comparatively trifling. We are not sure that a Von Pirquet's test is "of great value if the reaction is positive," at any rate in adults; "heterodox mitosis" (!) is presumably "heterotype"; adrenalin and pituitary extract are not "rapidly oxidized" after injection, as far as we know. We think it should be mentioned that death has followed injection with salvarsan. The author still supports the now somewhat discredited theory that cutting the thoracic duct is a grave injury, and he gives Albrecht's explanation of cleft palate. The gastric HCl. is erroneously given as 2 per cent. (p. 662). We think the interesting condition called traumatic asphyxia not too rare to merit a word or two.

Appendicitis: a Plea for Immediate Operation. By EDMUND OWEN, F.R.C.S., D.Sc. (Hon.). Pp. xii, 214. Bristol: John Wright & Sons Ltd. 1914. Price, 3s. 6d. net.

We welcome Mr. Edmund Owen's book on appendicitis, as it is likely to impress those who have to treat patients suffering from this disease—the general practitioner, the physician and

the surgeon—with the danger which a non-operative treatment involves, and the impossibility of estimating from the symptoms and the physical examination of the patient how serious the mischief in the appendix may be, and therefore how great may be the danger of perforation or gangrene of the appendix, with serious infection of the peritoneal cavity. The author maintains that the proper treatment for all cases of appendicitis is operation as soon as the diagnosis can be made, and he shows that if this treatment is adopted statistics indicate that the mortality of the disease is considerably reduced in a large number of consecutive cases. He is quite prepared to admit that if this practice is followed a good many cases will be operated on that might have recovered without, but he considers, and we think rightly, that it is better to have an operation performed which may not really have been necessary, rather than incur the risks of an uncontrollable peritoneal infection, with the likelihood of recurrent attacks even if the patient recovers from his present one, any of which may be a source of great danger.

Mr. Owen, and indeed most surgeons, consider that after recovering from even the first attack of appendicitis, the appendix should be removed, but to this we do not subscribe. If the surgeon holds this view, why not remove it as early as possible in the first attack, though there may be more risk than in operating after the attack, when it is almost nil? The risk is very little if the operation is done quite early and the very grave risk of the continual progress of the disease avoided. Of course, if we operate quite early in the attack we have no time to watch the patient, and therefore we are more likely to err in diagnosis than if we waited a few days. We think the surgeon ought to be pretty sure of his diagnosis before he operates, without waiting for confirmation by further observation of the patient. Mr. Owen tells us that if we are suspicious only of appendicitis we must "look and see." We do not feel altogether ready to agree about this. We should certainly agree that if you can make a definite diagnosis of appendicitis it would not be wise to wait and see if any indication was forthcoming as to the exact condition of the appendix, or even whether it was seriously affected or not; but it does not seem to us that operation should be undertaken when there is only a suspicion the case may be one of appendicitis.

Indeed, Mr. Owen does not really seem quite sure about the advisability of operating in doubtful cases himself, for he says there must be an agreement of two medical men that the case is probably appendicitis before the surgeon looks to see. At any rate, we think the patient ought to be clearly informed that his medical advisers do not feel sure whether

he has appendicitis or not, and they propose to "look and see." Even Mr. Owen allows that there must be "no reckless haste in advising operation." We do not think Mr. Owen sufficiently admits the difficulties that may arise in the differential diagnosis of appendicitis. For instance, he says "the surgeon who, ever on the look-out for appendicitis in his daily work, is so keen to recognise it, that he sees it in the pain and vomiting of ureteral calculus, is somewhat like a man walking up a marsh for snipe, who is so anxious to be ready for the bird that he lets off his gun even when a startled lark makes an upward dash." But the differential diagnosis between a stone in the right ureter and appendicitis may after a careful consideration be most difficult, and in several cases the appendix has been removed when a stone in the ureter caused the symptoms. Nor does Mr. Owen, we think, sufficiently admit the difficulty in the diagnosis of acute chest affections from appendicitis. He says, "Percussion and auscultation give clear evidence of the nature of the affection, but the physical signs may not be at all clear at the commencement of lobar pneumonia, and it may not always be easy to discover a pleuritic friction sound." No reference is made to the distinction to which the late Mr. Harold Barnard called attention, that "the abdominal wall becomes soft for a minute at each inspiration, which is not the case in acute peritonitis."

We think some of the most valuable information in Mr. Owen's book is that given in the chapter on "Diagnosis," with reference to the way in which the practitioner may be misled by the absence of the usual signs and symptoms, and also in the chapter on "A Fool's Paradise Stage," in which the author shows how with the subsidence of some symptoms serious mischief may yet be progressing. We are glad to see the fact that there may be no rigidity at all in acute cases is recognised, for its value as a sign, when present, may induce some to regard its absence as of distinctive negative value.

There is one detail in Mr. Owen's operative procedure we are rather surprised at. He tells us that, having opened the peritoneal cavity, he proceeds to remove the appendix, and may have to break through an abscess cavity to reach it; but we hear nothing about that packing off of the infected area from the general peritoneal cavity with gauze, before the pus is liberated, which adds so much to the safety of the operation. It may be that Mr. Owen has forgotten to mention it, and will do so in a later addition; we can hardly think he omits this precaution.

However, the value of the book lies in its lucid argument for immediate operation in appendicitis, and it will indeed do a good work if it will persuade those in charge of such cases to call in a surgeon at once, and the surgeon to operate at once if he can definitely diagnose acute appendicitis. We also sincerely

hope, but hardly expect, that the book will fall into the hands of a few physicians who think they can tell what course a case of appendicitis is running by their observation of the patient. It may save them from a few of those painful surprises which the practitioner, too confident in his own power of diagnosis and prognosis with regard to this often misleading disease, will inevitably experience.

Chronic Colitis : its Causation, Diagnosis and Treatment. By GEORGE HERSCHELL, M.D., and ADOLPHE ABRAHAMS, M.D. Pp. 273. London : Longmans, Green & Co. 1914. 6s. net.

Although this book is entitled *Chronic Colitis*, the authors expressly exclude ulcerative colitis, "except in so far as it relates definitely as a complication to chronic colitis." They make a clinical classification into chronic colitis (*a*) with, and (*b*) without, excessive secretion of mucus, and (*c*) muco-membranous colitis. Clinically there is no doubt, whatever its pathology may ultimately be shown to be, that the latter disease gives a distinct symptom-grouping. The difficulties of such a clinical classification appear in the second chapter on pathology, where a classification founded upon a distinctly anatomical basis is given, and in this and the following chapter on causation conditions are included which lead on to ulcerative colitis. This is apt to produce confusion in the reader's mind, as in discussing the disease the authors do not clearly distinguish between the two conditions. We think that in a work on colitis the different forms of ulcerative colitis should be included, because from their intractable nature, their tendency to progressive involvement of fresh areas of the bowel, and their often fatal termination, they are certainly the most important.

The scope of the work is therefore with what we may term the minor forms of colitis, no doubt a sufficiently troublesome group of diseases, and often misapprehended. In these forms of colitis the authors quite rightly lay stress on the paramount importance of previous constipation in the causation, and also rightly combat the erroneous idea, still widely prevalent, that diarrhœa of some kind is a constant symptom of these disorders, whereas many cases are attended throughout by constipation.

We do not regard the classification into clinical types of the disease given in this book as of value. The first four depend merely upon individual variations in the clinical course of the disease, and may probably all be referred to the effects of long-continued constipation, and we see no advantage in labelling other forms pseudo-malarial, pseudo-typhoid, etc.,

but rather the reverse. Malaria is a term which has now a definite signification, to which it should be restricted.

As to the chapter on diagnosis, though the importance of the sigmoidoscope in examination is recognised, we think that this section in a book professedly dealing with affections in which the sigmoidoscope is especially valuable, should be much fuller, especially as to morbid appearances; again, in dealing with the question of occult blood in the fæces, no advice is given as to the most useful tests; again, in the section on dissolved albumin in the stools, the diagnostic indications are not given precisely enough. A few additions of a similar kind and a little further elaboration would greatly increase the value of the section on diagnosis. The larger part of the book is taken up with the treatment, which is therefore very fully discussed. The practitioner will find in it a number of useful hints, and there is a section on the cooking and preparation of foods which will be found very helpful. On the whole, allowing for individual differences of opinion as to the value of particular remedies, the advice given is sound and practical. This section is perhaps rather discursive in parts, and the number of remedies given may be somewhat bewildering to one who desires direct help in the treatment of a special case; a short summary of the measures the authors consider best would add to its practical utility. We have no doubt that our readers will find this book a help in the treatment of a troublesome class of cases. There is a good index.

Achondroplasia : its Nature and Cause. By Dr. MURK JANSEN. Pp. 98. London: Baillière, Tindall & Cox. 1912. Price 6s. net.—This admirable study of achondroplasia should be read by all interested in the subject. The features of this disease are held to fall into two main sets, the one due to dwarfing of cartilage bones, and the other to mechanical malformations of the fœtus. It is with the latter that the author is mainly concerned, and he seeks to show that these are due to pressure by the amnion, either from an amnion unduly small in relation to the size of the fœtus, or to an excess of amniotic fluid. The mechanical deformities of achondroplasia he attributes to an infolding of the head and trunk of the fœtus. These causes are at work from the third to the eighth week of fœtal life. The author brings forward a considerable body of evidence in favour of his thesis, which he states in a particularly lucid way, showing a very wide acquaintance with all the facts that bear upon the case. Whatever view may be taken of his proposition, which for its verification requires further observation and experiment, this study contains a large number of original and suggestive observations, and other theories as to

the nature of achondroplasia receive adequate notice. There are a number of excellent illustrations, and altogether this little book forms a valuable contribution to an obscure and interesting disease.

Mental Deficiency (Amentia). By A. F. TREDGOLD. Second Edition, Revised and Enlarged. Pp. 491. London: Baillière, Tindall & Cox. 1914. 12s. 6d. net.—This book is already so well known and so widely appreciated that it needs little further commendation. It is probably the best book upon the subject, treating mental deficiency in a wide and comprehensive manner. It is obviously the outcome of large experience, and is marked by sound judgment, lucidity of statement, and care for what is of practical utility. It is written in a clear and attractive style, and whilst of considerable length, it maintains the reader's interest throughout. The Mental Deficiency Act, 1913, will undoubtedly result in an increased demand for knowledge of this subject on the part of the general practitioner, whose opinion will be more frequently sought in this class of cases, and his responsibility in advising upon them be greater. The chapters on mental tests, case taking, which have been added to this edition, and those on diagnosis and treatment, will be especially valuable to him, and he could not have a better guide. A summary is given of the Mental Deficiency Act, 1913. The present issue has been thoroughly revised, is well illustrated, and well deserves our cordial recommendation.

Diagnosen av Barnetuberkulosen's Kliniske Initialformer. By H. G. GADE. Pp. 112. Kristiania: Steen. 1914.—Gade discusses in detail the early signs and symptoms of tuberculosis in children, directing his special attention to the earlier changes in the bronchial glands. To this end he has made a very careful study of thoracic conditions present in children who do not show evidences of tuberculosis, and gives a number of radiograms from children of various ages. He lays considerable stress upon the value of radiograms in connection with bronchial gland lesions, and also describes, at considerable length, the signs upon which he places greatest reliance. The volume is worthy of reference, especially as there is a good bibliography.

The British Journal of Surgery. Vol. I. 1913–1914.—We gave a hearty welcome to the *British Journal of Surgery* when the first number was published in July, 1913.[1] Now we have the first four numbers before us bound together in one handsome volume. Briefly, we may say that the book is full of valuable contributions to surgical literature from cover to cover. We find the promise given by the first part has been splendidly maintained in the three parts issued since, so that the *Journal*

[1] See *Bristol M.-Chir. J.*, 1913, xxxi. 268.

has continued to be worthily representative of the best in British Surgery. We congratulate the editors and publishers upon the brilliant success of their venture.

Practical Prescribing. By ARTHUR H. PRICHARD. Pp. xi, 307. London: Oxford Medical Publications. 1913. Price 6s. net.—This is a book put together on a somewhat original plan. The author has selected some thirty-five diseases, and details the treatment of each step by step. First he gives a short description of a case, then in parallel columns the treatment prescribed from time to time, and the objects for which each drug is exhibited. Then follow notes on the therapeutic action, indications and prescribing of the drugs used, and finally comments, not merely therapeutic, but more or less general in character. Thus the book reads like a series of clinical demonstrations, and as far as it goes will certainly be found of value to senior students. But the selection of diseases is a little arbitrary, and the detail so considerable that a very little goes a long way. The book can only be read with advantage in connection with the actual observation of cases; this is no disadvantage, as it renders it obviously unsuitable for "cramming." The treatment advised is generally on the orthodox textbook lines.

The Practitioner's Practical Prescriber. By D. M. MACDONALD, M.D. Pp. 198. London: Oxford Medical Publications. 1913. Price 5s. net.—This little book seems a sort of hybrid between a miniature "Dictionary of Treatment" and the "Information" given in the first half of a well-known visiting list. First, there is an alphabetical list of morbid conditions, with a very brief description of each. Then comes the usual posological table, and lastly miscellaneous notes on prescribing, incompatibles, spas, sickroom cookery, and other things. In a chapter called "Therapeutic Brevities" we find notes such as this: "Phenacetin, most helpful in the bronchitis of children." Later on there is a table for calculating the duration of pregnancy. A form for drawing up a *post-mortem* report, though doubtless useful, is a somewhat grim addition to a book devoted to treatment.

Materia Medica Notes. By JAMES A. WHITLA. Pp. 157. Edinburgh: E. & S. Livingstone. 1913. Price 2s. 6d. net.—The author modestly disclaims the title of "Textbook" for this work, but for the average medical student it will be found to contain all that can properly be included under the title of materia medica in a concise form. There are also some pages of prescriptions and general notes on prescribing. The author is perhaps right in beginning with the drugs themselves, and afterwards giving an account of the official preparations. As in all books of this kind, the pharmacology and therapeutics are

somewhat of the stereotyped order; thus alcohol is described as a "stimulant," butyl chloral hydrate is said to "concentrate its action on the fifth nerve." Opium is said to be contra-indicated in kidney disease. Apart from this the book is carefully written and reliable, and would form a useful companion to such a work as Dixon's *Pharmacology*.

Anæsthetics: their Uses and Administration. By DUDLEY WILMOT BUXTON, M.D., B.S. Fifth Edition. Pp. xiv, 477. London: H. K. Lewis. 1914. 10s. 6d. net.—Those who are familiar with Dr. Dudley Buxton's *Anæsthetics* will welcome his new edition, and will find, as they might expect to find, that the work of revision has been carried out by the author with characteristic thoroughness, the whole book having been more or less re-written, and many additions having been made in both letterpress and illustrations. Excellent short descriptions have been included of intravenous and intratracheal ether, of dosimetric chloroform, and of spinal, regional and local analgesia. It would be impossible for any man to dogmatise as to the relative values of all the recently-introduced methods, and Dr. Buxton has adopted the course of stating the chief advantages claimed for them by their respective advocates, while at the same time he has drawn the reader's attention to the dangers and disadvantages which may be met with in their association. The chapter on local and regional analgesia now includes very useful plates taken from Rawling's well-known book on "Landmarks," and the subject has been afforded the prominence which the increasing popularity of these methods demands. The book is full of useful detail, but its size has been kept within reasonable bounds; and its author is to be congratulated upon the masterly way in which he has coped with his task.

Modern Anæsthetics. By J. FREDERICK W. SILK, M.D. Pp. xii, 200. London: Edward Arnold. 1914. 3s. 6d. net.—By the title *Modern Anæsthetics* one might be led to expect a work dealing only with methods of recent invention or introduction, but Dr. Silk's book bearing this title is really a small textbook treating on all the established methods, old and new. As a consequence, room has not been found for more than short accounts of such subjects as intravenous ether, spinal analgesia, and intratracheal ether. The section on local and regional analgesia is clearly put, and should help to encourage the correct employment of drugs in this direction. On the whole, the work is eminently practical, and affords welcome and reliable guidance for students of this branch of medicine.

The Sanitary Inspector's Handbook. By ALBERT TAYLOR. Fifth Edition. Pp. xii, 612. London: H. K. Lewis. 1914. Price 6s. net.—This edition of this well-known work has been

brought up to date and revised, especially as regards recent legislative enactments on public health matters. No detailed comment on its contents is necessary, beyond noting that the work of revision has been carried out in the same thorough and accurate manner which has made the previous issues standard books of reference for practical men.

The Administrative Control of Small-Pox. By W. McC. WANKLYN, D.P.H. Pp. vii, 86. London: Longmans, Green and Co. 1913. Price 3s. 6d net.—Dr. Wanklyn's large experience of small-pox gives this work a *prima facie* title to respect; his lucid and definite style makes the perusal of it easy and pleasant. His sound common sense, command of administrative detail, and practical organising ability as shown throughout its pages, make it a most helpful contribution to the literature of this important subject. It will be read, of course, with greatest advantage by those engaged in public health work, but we consider that medical men in general would be well advised in getting and reading it, especially when cases of small-pox occur in their vicinity. An intelligent appreciation of the work of the Medical Officer of Health, when he is faced by a possible outbreak of small-pox does not come by nature, as it were, even to trained clinicians and general practitioners, but is most desirable for them under the circumstances. We would even say that a certain section of the lay public, especially members of local councils and health committees, might perform their duties to the community more satisfactorily had they some knowledge of the matters very plainly set forth in this book. We hope it will be widely read, and its valuable teaching properly assimilated.

Practical Nursing. By the late ISLA STEWART and HERBERT E. CUFF, M.D., F.R.C.S. Fourth Edition. By H. E. CUFF and W. T. GORDON PUGH, M.D., B.S. Pp. x, 448. Edinburgh: William Blackwood & Sons. 1913. Price 5s. net.—A book which has reached its fourth edition, and has been reprinted eleven times, may be said to have stood the test of time, and established its reputation on a firm foundation. The present edition of this valuable work has been brought up to date, and will be found a most exhaustive and complete treatise, both on practical nursing and also on the general principles and scientific discoveries which underlie that art. The style is simple, clear and concise, and by the adoption of a smaller print the book has been kept within reasonable dimensions. Doctors as well as nurses may study its pages with advantage, especially those who cannot always depend on the services of highly-trained nurses for the care of their patients.

Editorial Notes.

Annual Meeting of the B.M.A. at Aberdeen.

The British Medical Association Annual Meeting at Aberdeen was accounted by all who took part in it as one of the most interesting and successful of these gatherings, a result attributable to the splendid spirit of hospitality which animated not only the members of the local branch of the B.M.A., but the University and civic authorities, and also private individuals. Every hour of every day was filled with interest for the visitors. The place itself, with its long and varied history, and its many associations with great names and historic events in the past, was an admirable setting to the scientific business and social amenities of the occasion. Many must have wondered why the annual meeting had never before been held in such an eminently suitable place.

Sir Alexander Ogston's Presidential Address took place in the Music Hall, a building in the classical style which reminded Bristolians of the Victoria Rooms. There was a good attendance of members and ladies, and the proceedings began by the presentation of foreign and colonial visitors to the President. Unfortunately many of the former had already been recalled to their native countries owing to the disturbed political situation, and among the representatives of the British Dominions and Colonies there were also gaps, caused (it was surmised) by individual modesty, which shrank from the ordeal of mounting the platform. The address itself was a learned and interesting survey of the history of the Medical School in Aberdeen,

which included also an account of the ethnology and political history of the district. The address supplemented well the several articles which have recently appeared in the *British Medical Journal* on the history and associations of the city and University, and was greatly appreciated by those who heard it.

The beautiful buildings of Marischal College, where the sectional and general meetings were held, must have impressed all visitors with their grace and dignity. Luckily several days were sunny, so that the sparkling grey granite of which they are built showed to great advantage. Opposite to these several of the visitors were shown by their hosts Aberdeen's only "slum." It would not be classed under that name in other towns we could mention, and consists apparently of a single narrow court where stands a tall granite house now let out in tenements. Formerly it was the abode of a Scottish lady who entertained the Duke of Cumberland there when he was quartered in Aberdeen. It is said that after his departure the family plate was found to have disappeared.

Many excursions and visits to places of interest were arranged and successfully carried out. On the afternoon of July 30th a well-filled special train took a number of visitors to Nordrach-on-Dee, near Banchory, where they were most hospitably entertained by Dr. and Mrs. Lawson. The sanatorium consists of one long building, the corridor and sanitary blocks being placed at the back facing the north, and the patients' rooms on the south, overlooking the Valley of the Dee. It is constructed of wood and iron, on a granite base, only the small central tower being of stone. At the back is a pretty lawn, surrounded with pine woods, where tea was provided. Patients said that it was nearly always possible to have tea out of doors. The rooms, which seemed very sunny and cheerful, are warmed by pipes

running round the skirting. A fixed washing basin, with hot and cold water laid on, is provided in each. The windows are hinged, with lights opening horizontally above. At one end of the building are large iron verandahs, and at the other a "winter garden" opens on the south aspect. The pathological laboratory and the Medical Superintendent's house are in a separate building. Much interest was taken by visitors in the "kennels," where were seen fascinating white Highland terriers, Aberdeens and obsequious bull-dogs of extraordinarily aristocratic lineage. Another attraction was an open-air shooting gallery, where a distinguished London physician won a silver cigarette case for his accurate diagnosis of the bull's-eye. The dinner of the Association was excellent, and, what is more remarkable, the speeches afterwards were worthy of the dinner. The haggis was escorted in by pipers of the Gordon Highlanders, and tasted by most—especially as it was necessarily accompanied by some very superior neat whisky. Our northern colleagues assured us that this was physiologically the only sound practice.

Another interesting visit was that arranged for by Dr. E. I. Spriggs to Duff House. The party were taken in motor cars across fine open country for forty-five miles, which brought them to the north coast of Banffshire, and incidentally gave them a good appetite for lunch. After this function the party were shown over Duff House itself, and alternately admired the accuracy and elegance of diet sheets, and the beautiful decorations by William Adam, father of the two celebrated brothers. The mantelpieces and ceilings are as fine as anything which the architect's sons ever produced, and are shown to great advantage by the colouring, which has been recently renewed.

The diet sheets are skilfully drawn up, and show at a glance the caloric value and composition of all the food consumed by the patient; the sugar and acetone bodies

and other urinary constituents are also charted daily when necessary.

The River Deveron, which flows northward through the grounds, is of great natural beauty. The visitors were taken to a bridge, a mile or so above the house, where a single arch spans a rocky gorge lying deeply between wooded hills. Many felt that they would cheerfully face the dietetic regimen of Duff House for a month, tempered by frequent visits to the brown pools of the Deveron, and a reasonable amount of fisherman's luck. After tea the party motored back to Aberdeen, and the evening was devoted to the conversazione given by the Aberdeen Branch. It was held in the Music Hall, and consisted of a dance, a soirée, and a sort of smoking concert without the tiresome songs, all rolled into one. It formed a fitting conclusion to a very enjoyable gathering.

An excellent illustrated handbook, full of detail and admirably got up, was presented to the members by the local executive committee. By a strange irony we noticed among the advertisements one of that mysterious drug Umckaloabo, the origin of which has recently been discussed with considerable publicity.

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The War.

THE sudden outbreak of a European war, whilst it disturbs profoundly the normal conditions of life in every civilised nation whether directly participating in the struggle or not, makes its effect felt in very direct fashion upon the medical profession. The demand for medical units in the field has called to the theatre of war not only the greater part of the regular establishments of the naval and military medical services, but these have had to reinforce their *personnel* with large additions to their junior ranks. Most of the hospitals in the country have had to surrender the

majority of their resident officers to take commissions in the Navy or Army Medical Services. The mobilisation of the Territorial Force has drawn many more of our profession from their practices to train with their various field units ; whilst the Base or General Hospitals have been the means of withdrawing from some portion of their civil duties the honorary staffs of our leading hospitals. In Bristol the number of medical men serving with His Majesty's Forces in one capacity or another is very large. From the Royal Infirmary and General Hospital almost the whole of the resident staffs volunteered their services, and were at once accepted by the War Office. The vacancies thus created could not be filled by qualified men, and the senior students have had the opportunity of occupying the posts of house-physicians and house-surgeons, thus enjoying advantages and shouldering responsibilities which in times of peace are only accomplished after the qualifying examinations have been passed. It is no small credit to these men that they are proving themselves fully equal to the duties thrust prematurely upon them, and are discharging their responsibilities in such fashion that the normal work of the hospitals can continue without interruption or the slightest decline in efficiency. From our fleet and our army in the field the reports are too meagre to enable us to give any particular news of the Bristol Medicals who are on active service. Many of them are, we know, with the British Expeditionary Force, over whose movements a wise, if sometimes tantalising, obscurity prevails. We hope, before many months have passed, to welcome them back rich with the honours of a successful campaign, and to hear more of the services they are now rendering to the Allied Armies.

The Third South Midland Field Ambulance, under the command of Lieut.-Colonel James Young, T.D., are

undergoing arduous training in the Eastern Counties preparatory to going out to take their place at the front.

Lieut.-Colonel J. Paul Bush, C.M.G., M.S., relinquishing all his other professional engagements for the time being to devote his whole time unreservedly to his arduous duties as Colonel-Commandant, has taken over the new Royal Infirmary (King Edward VII Memorial), and has there established the Second Southern General Hospital as half a general hospital, consisting of 260 beds for patients, and so far 50 per cent. of his *à la suite* staff of officers have been called up. Colonel Bush did not feel justified in insisting on the original scheme of the old and new buildings being taken over entirely by the military, in view of the fact that other adequate means for completing the scheme for 1,040 patients' beds had been placed at his disposal.

Colonel Bush has received most able assistance from his Adjutant, Captain F. C. Nichols, who is also devoting the whole of his time to the unit.

The scheme now stands as follows :—That provision is being made for what is equivalent to two general hospitals, each with 520 patients' beds, and which involves the further provision of 400 additional beds for the members of the medical staff, matrons, sisters, orderlies, and other supernumeraries being housed and fed, etc., in connection with such an establishment.

This increased accommodation has been obtained by the military authorities accepting the magnificent offer of the Bristol Board of Guardians to place at Colonel Bush's disposal their entire establishment at Southmead, where 680 patients may be received, if unfortunately the war should render necessary such a vast increase in the medical arrangements here. Furthermore, Mr. R. E. Bush has most generously placed at the service of the authorities 100 patients' beds, which he is equipping at his beautiful

residence, Bishop's Knoll, Stoke Bishop, and which he has undertaken to maintain free of all expense, besides providing also the necessary additional accommodation and maintenance for the *personnel*.

We now enjoy the unfamiliar sight of various members of the Hospital and Infirmary staffs working side by side and wearing the R.A.M.C. uniform whilst on duty. The rank and file of the military hospital are installed as nursing orderlies acting under the direction of many of our sisters and nurses who belong to the Territorial Nursing Staff. The difficulties of organising and installing this military hospital have been ably overcome by Col. Bush and his staff, with the valuable assistance of Miss Baillie, Principal Matron, and Miss Harvey, Matron of the 2nd S. Gen. Hospital. The action of the President and Committee of the Bristol Royal Infirmary in placing, some years ago, the Infirmary buildings at the disposal of the War Office for this purpose has contributed to the prompt establishment of a singularly well-equipped military hospital, of which the authorities have not been slow to avail themselves. The first patients were admitted as early as August 13th, but it was not till September 2nd that the large contingent were received of the sick and wounded who had been continuously travelling from the fierce action at Mons. From all accounts the patients appreciate very highly the luxurious comforts by which they find themselves surrounded, and the stories they have to tell show that the British Army has lost none of its stoutness and gallantry. A striking feature of the nature of the injuries was the large number of men admitted suffering from wounds of the feet and legs inflicted by shrapnel bursting over them in the trenches. The German rifle fire seems to have been remarkably ineffective, and our men have a poor opinion of the marksmanship of their infantry.

The presence of our wounded soldiers in Bristol brings home to us in a way that we could not otherwise realise the sternness and magnitude of the struggle in which we are engaged against "Prussian militarismus," as a German friend rightly described it. At the same time, we believe it has already had the inestimable effect of impelling many men of serviceable age to join the colours and fill the lamentable gaps in our fighting force. We trust that a steady influx of recruits will enable our army in France and Belgium, no less than our fleet patiently waiting off Heligoland, "to entertain those that shall assail us with their own beef in their bellies, and before they eat of our Kentish capons," which Sir Walter Raleigh took to be the wisest way.

We append the names of the R.A.M.C. staff of the Second Southern General Hospital, the asterisk indicating those who have been mobilised up to the present.

Lieut.-Colonel J. PAUL BUSH, C.M.G., *Administrator.*
Captain F. C. NICHOLS, *Registrar.*
Lieut. A. L. TAYLOR, *Quartermaster.*

Lieut.-Colonels.

R. SHINGLETON SMITH.
*J. MICHELL CLARKE.
*G. MUNRO SMITH.

Majors.

*A. B. PROWSE.
*J. SWAIN.
C. A. MORTON.
P. WATSON-WILLIAMS.
*R. G. P. LANSDOWN.
C. H. WALKER.
W. R. ACKLAND.

Captains.

*F. H. EDGEWORTH.
*J. L. FIRTH.
*J. O. SYMES.
*T. CARWARDINE.
*JAS. TAYLOR.
H. G. KYLE.
*CAREY F. COOMBS.
*H. F. MOLE.
E. C. WILLIAMS.
*E. W. H. GROVES.
*J. M. FORTESCUE-BRICKDALE.
*E. H. E. STACK.
J. FREEMAN.
J. DACRE.
J. J. S. LUCAS.
H. E. HARRIS.
W. COTTON.
*HEDLEY HILL.
*W. S. V. STOCK.

Honorary Medical Officers of the Bishop's Knoll Hospital.

Dr. J. A. NIXON,
Captain National Reserve.
Mr. G. T. MYLES.
Mr. H. F. PARSONS.
Mr. A. RENDLE SHORT.

We have dealt only with the more purely medical and surgical provision in Bristol for the sick and wounded from the front, but we do not forget the tribute that is owing to those whose devotion and enterprise are so signally successful and deserving of grateful recognition in Red Cross work and the Ambulance, visiting the patients and providing for refugees and in numberless other directions. These we shall refer to in a subsequent issue.

* * * * *

Winsley Sanatorium.

IN our June issue we drew attention to various grave defects in the management of the medical affairs of this institution, and incidentally alluded to their own President's criticism of the managing board, and to the resignation of their late resident medical officer, who found that he was not allowed sufficient administrative control, and that the number of patients and the inadequacy of trained assistants rendered impossible that individual care and attention which is the essence of modern sanatorium treatment. We further pointed out that before the end of last June one resident medical officer had had "*something like* one hundred patients to supervise and to treat" at a time.

At the ensuing meeting of the Bristol Health Committee some members, who are also associated with the Winsley Sanatorium, made themselves sponsors for that institution, though avoiding any reference to our first and indeed to most of the serious comments, and we much regret that they have made it necessary to return to the subject again.

Alderman Anstey said there were one or two of our

statements that he felt it was his duty to refer to "as one who knew something about Winsley," and went on to state that "the daily average number of patients for 1913 was 73·7 . . . they had never yet reached 100." Well, 73 is bad enough if a maximum, yet even at that distant date the maximum number of patients had reached 85! But as the Alderman professed to be correcting our mistakes, it is a pity that it did not occur to him to mention that on the day he spoke there were no less than 96 patients at Winsley (which we still venture to call "something like" 100, and since that date they have reached 98), though this would have somewhat discounted the chafings of his colleague, Mr. Dyer, at our well-meant criticisms, put forward in the interests of poor patients suffering from a mortal disease.

Why, even if one most competent medical officer was granted the necessary and proper administrative power, he could not adequately carry out the work of controlling, treating, and supervising so many patients on anything like a high standard, and meanwhile regrettable occurrences at Winsley have shown that our strictures were not groundless. At Midhurst (King Edward VII's Sanatorium), with 104 beds, there are three medical officers and a resident pathologist, in addition to the consultants; here sound scientific work, which is of great value, is being done.

The medical men to whose initiative Winsley Sanatorium owes its existence, and who handed over the management to the Committee and Board of Management, were jealous for the good name of Winsley, and hoped that it would be continued at the higher level of efficiency as obtained when Mrs. Proctor Baker gave £10,000 to help especially the medical establishment. As matters are, Winsley is a warning to those who would allow the voluntary hospitals to drift into the control of a municipality. We gladly recognise the devotion of its managers—it is their discretion in medical

affairs which is at fault; but since the Committee have lately been strengthened by a recognised expert on tuberculosis, one of the earlier resident medical officers of the Institution, and they are at length proposing to appoint a second medical officer, which their Medical Board urged long ago, we feel that the seed has not altogether fallen on stony ground. The War will make this tardy resolution less easy of accomplishment now, but we trust the remuneration offered will be on an adequate scale to attract the best skill for such highly responsible work.

Therapeutic Notes.

ANIMAL EXTRACTS IN THERAPEUTICS.

THIS subject was recently discussed at the section of Pharmacology at the British Medical Association Meeting at Aberdeen. Thyroid extract was not included in the discussion, though allusions to it occasionally crept in, as it was thought that the great mass of evidence now accumulated on the action of this substance was too large to be dealt with, unless a whole sitting could be devoted to it alone.

Professor Noël Paton, who opened the discussion, pointed out the many difficulties and fallacies which surround the interpretation of experimental and clinical data on the action of animal extracts, and his paper, when it appears, should be carefully read by clinicians, as it is a valuable warning to all who may be led to draw too definite or far-reaching conclusions from their own observations, or from those which appear in the already extensive literature. For his task Professor Noël Paton was admirably fitted, as he has recently devoted considerable attention to the subject, and his conclusions, coming from a pure physiologist, are less likely to be biassed than those

which are drawn by pharmacologists or physicians. Among the many difficulties and fallacies which may arise he called attention to the following: (1) Nucleo-proteins occurring in animal extracts may be missed in the process of extraction, and their active part in contributing to the physiological effect overlooked; (2) early putrefaction may produce bodies (such as choline or the putrefactive amines) with distinct pharmacological action, which may be attributed to the specific "internal secretion" of the organ; (3) dosage may introduce much variation into the action of an animal extract, as it is well known to do in the case of vegetable drugs; (4) the so-called "method of antagonism" is very difficult to employ in demonstrating the action of an internal secretion.

Again, speaking generally, the mode and place of action of an internal secretion is an extraordinarily difficult thing to determine. Thus adrenalin cannot produce glycosuria by its action on the pancreas, as it is effective after that organ is removed. Its action must be peripheral, as it occurs after section of the splanchnics. The liver has been suggested as the part on which it acts, but this view is also difficult to elucidate. Apparently the action of internal secretions is specific, and not merely a general metabolic effect, but considerable variations occur in the specificity owing to differences in the physiological sensitiveness of the same organ, both at different periods of its development and as it occurs in different animals. Professor Noël Paton considers that the specificity of extracts has been much exaggerated, and condemns *in toto* the use of advertised mixed extracts, which he characterises as the worst form of polypharmacy. He also objects to the word "hormone" as a general term for the active principles of internal secretions. Hormone implies stimulation, whereas many of these principles are inhibitory.

Dr. Grünbaum, who spoke next, reinforced the very necessary words of caution as to the interpretation of results which the first speaker had uttered. Passing on to the consideration of individual extracts, he said that he had fed a number of persons between the ages of 16 and 18, whose growth

was below normal, on *suprarenal cortex*, without result. The *medulla*, on the other hand was useful in three ways: (1) In the diagnosis of Addison's disease; (2) to tide over temporary suprarenal inadequacy, as after an injection of salvarsan; (3) continuously in large doses (40 to 60 minims three times a day) in Addison's disease. In hæmatemesis a few minims every hour for 24 hours might be useful, but at longer intervals it did no good. In hæmophilia he had found it useless. *Parathyroid extract* he had tried in two cases of paralysis agitans without result. *Pituitary extract* he found might be used to raise the blood pressure temporarily, but repeated injections were valueless. In two cases of adiposis dolorosa he had seen improvement occur with large doses, but the remedy was costly.

Kidney extract he did not consider of practical value, and doubted the theoretical grounds on which its employment in nephritis was advocated. *Hormonal* he had used with appreciable results in chronic constipation, but he was inclined to attribute much of its effect to suggestion, the intramuscular injection of this substance being very painful.

Dr. Hertz, dealing first with adrenalin, advocated its use in very small doses, usually ½ minim, and never more than 1½ minim, subcutaneously to relieve the spasmodic attacks in asthma. He gave details of his own case. He believed it to act as a broncho-dilator, and did not think that these small doses, even when repeated two or three times in a night, could produce atheroma. He had tried *Parathyroid extract* in ten cases of paralysis agitans, and like Dr. Grünbaum, had obtained no results. He related, however, a curious case of definite parathyroid insufficiency after the removal of a goitre, which was cured by continuous doses of the extract.

Dr. Gunn pointed out that all cases of heightened blood pressure were not due to excess of *suprarenin*. He doubted if the action of this substance varied with the dose. On the intestine it may act in one of two ways—either directly on the blood-vessels, or on the muscularis mucosæ, making it contract and close the vessels. Experimentally *pituitrin* had no stimulant action on the heart, and it was very difficult

to show that it had any action on the isolated intestine. However, it might act by making the muscle more sensitive to motor nerve impulses.

J. M. FORTESCUE-BRICKDALE.

The Library of the Bristol Medico-Chirurgical Society.

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Obituary.

Dr. CHARLES STEELE.

Charles Steele, M.D., F.R.C.S., who died at the age of 76. on Sept. 20th, at his residence, Richmond Hill, Clifton, was born in 1838, his father having been the Rev. John Steele, Rector of Christ Church, Macclesfield. After an early training

in the Isle of Man, he became a student at the Bristol Royal Infirmary and Medical School, and obtained his first qualification, the M.R.C.S., in 1860; the L.R.C.P. followed in 1861. Later, in 1869, he obtained by examination the distinction of F.R.C.S. Eng., and in 1880 the degree of M.D. at Durham. After some junior appointments away from Bristol, he commenced practice in Meridian Place, Clifton, but removed to Richmond Hill a few years later, and practised there for many years, until some six years ago his health gave way, and the infirmities of age compelled him to give up all active occupation.

For forty-five years he did much useful work, and obtained a considerable reputation, so much so that in 1870, on the retirement of Mr. Augustin Prichard, he was elected Surgeon to the Bristol Royal Infirmary. Here he took great interest in his patients, to whom he became much attached, not only by his skill, but also by his geniality and good humour. However, in 1878 he found himself so pressed with work elsewhere, that reluctantly he felt compelled to ask his colleagues to accept his resignation; meanwhile he had shown himself to be a bold and enterprising surgeon, with considerable originality and ingenuity in devising and constructing surgical appliances, amongst which may be mentioned the use of flexible probes, chair supports for spinal curvatures, and steel spring splints. He was at one time on the teaching staff of the Bristol Medical School, when he was appointed to be Lecturer in Physiology. He was also Consulting Surgeon to the Bristol Royal Hospital for Sick Children and Women, and for a short time he acted as Surgeon to the Bristol Police Force. He was for many years a member of our Society, assisting in its meetings.

He was an occasional contributor to the *British Medical Journal* and *Lancet*, where we find records of some of his more remarkable operations, such as excision of the scapula and upper jaw, colotomy, skin grafting, excision of varicose veins, etc.; but these were mostly in the early years of antiseptic surgery, before the modern methods became established.

The present generation knows little of the work of thirty or forty years since: this is soon forgotten, but Charles Steele was in his early years one of the leading surgeons of his time, and he was much beloved by a large clientèle of patients and friends.

The funeral was largely attended by old friends, of whom many had been professional colleagues; amongst these we may mention two of his sons-in-law, Colonel Edward Owen Thurston, I.M.S., and Cyril G. Russ-Wood, F.R.C.S., of Shrewsbury, and his son, Dr. W. Hugh Steele, of Torquay, who is also a distinguished member of the profession, to which Canon Haigh made reference in his remarks at the Church of St. Paul, Clifton, when he said—"Dr. Steele belonged to that church. They

valued him. He was one of the devoutest of the devout. He (the speaker) knew what a true man he was . . . They were met to bid him a loving farewell." An old pupil adds "that he was a good conscientious man, honest in his convictions as well as in everything else, and a very hard worker."

GERALD GRACE, M.R.C.S., L.R.C.P.

THE death of Mr. Gerald Grace took place in South Africa as the result of a singularly tragic incident on Sept. 17th. For some time the Witwatersrand had been terrorised by a band of desperadoes. Mr. Grace was travelling on the Witwatersrand reef in a motor-car resembling that in which the gang was believed to be escaping. The police challenged the car, but, according to the account in the *Rand Daily Mail*, Johannesburg, "a strong wind was blowing at the time; in fact, a howling dust storm had just spent itself. Mr. Grace, it seems, could not have understood the signal, for, according to the statement of a civilian, who, with three others, was a witness of the occurrence, the doctor appeared to lower his head, and the car shot forward. The mounted police then fired three shots in quick succession, and the car was seen to swerve on to the side of the road. Apparently after the first shot rang out the doctor, realising the situation and his peril at the same time, slowed down and stopped, but one of the shots did its deadly work."

The court of inquiry has exonerated the police from any blame for the sad occurrence.

Gerald Grace was 47 years of age, and received his early education at the Bristol Cathedral School. He subsequently studied medicine at the Royal Infirmary and Guy's Hospital. As a medical student, he displayed uncommon talents as a conjurer and entertainer. The shrewd exercise of his gifts in this direction enabled him, whilst studying medicine, to earn enough by his entertainments to defray the expenses of his medical education. After qualifying he became ship surgeon on the Union Castle Line, where his versatility won him wide popularity and many friends. On the outbreak of the South African War he served as an army surgeon. At the end of the war he married and settled in practice, with no small success at Springs, of which town he was mayor at the time of his death. As a medical student he was a great favourite amongst his contemporaries and all who knew him. He was a man of uncommon parts, possessed of unbounded humour, and made rare good company. He will be greatly missed, and we feel the deepest sympathy with his family at the tragedy

which has cut short his career. We regret to hear that Mrs. Grace, to whom he had only been married twelve months, herself received a bullet wound.

Local Medical Notes.

University of Bristol.—Students of the University have recently passed the following examinations:—

UNIVERSITY OF BRISTOL.—*M.B., Ch.B.—2nd Examination:* R. B. Britton, N. Durant, E. J. Ball, F. V. Jacques, R. H. Tasker; *Final Examination, Part I:* O. C. M. Davis. *B.D.S.—2nd Examination:* W. J. Langford. *Diploma in Dental Surgery — 2nd Examination:* R. L. O'Sullivan. *D.P.H.*—W. T. Torrance; *Part II:* J. R. Kay-Mouat.

UNIVERSITY OF LONDON.—*M.B., B.S.:* H. J. D. Smythe, A. H. White; *2nd Examination, Part II:* F. K. Hayman; *Part I:* W. H. Royal.

D.P.H. LOND.—Capt. G. S. Parkinson.

CONJOINT EXAMINING BOARD OF ENGLAND.—*Practical Pharmacy:* R. I. Dacre, W. K. A. Richards. *Medicine:* A. G. Bodman, C. J. D. May. *Surgery:* C. N. Vaisey, R. I. Dacre, *C. J. D. May, — Foster. *Midwifery:* J. W. Gilbert, *R. I. Dacre, G. S. Terry.

L.S.A.—A. G. Bodman.

L.D.S.—*Chemistry:* S. K. Rigg, I. Jacobs. *Physics:* S. K. Rigg, A. J. Constance, B. Leathlean.

APPOINTMENTS.

Lt.-Col. P. G. Stock has been appointed Director of the South African Medical Service.

Henry Devine, M.D., B.S. Lond., M.D. Bristol, M.R.C.P., has been appointed Medical Superintendent of the Portsmouth Borough Asylum.

Walter Salisbury, M.B., B.S. Lond., has been appointed Resident Medical Officer at Queen Charlotte Lying-in Hospital, Marylebone.

* Denotes qualification.